



UKRAINIAN CITIES:
THE SUSTAINABLE DEVELOPMENT
ON THE EVE OF FULL-SCALE
RUSSIAN AGGRESSION

The monograph, offered to the reader, contains the results of socio-geographical research to assess the level of urban development sustainability in Ukraine before the large-scale russian invasion on February 24, 2022.

Ukrainian cities: sustainable development on the eve of full-scale Russian aggression

Edited by Eugenia Maruniak and Sergyi Lisovskyi

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While assessing the balance using selected indicators and their parameterization, quantitative approaches were combined with taking into account public opinion, public vision of sustainable urban development and some problems of ensuring this balance based on participatory approach.

Taking into account the possibilities of the statistical base, the study was conducted on 153 cities of regional significance.

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INTRODUCTION

The UN Rio–1992 Summit identified the transition to sustainable development as a key challenge for humanity in the 21st century. Subsequent world forums under the auspices of the United Nations confirmed the correctness of the provisions set out in its policy documents and outlined and clarified new strategic goals and objectives for their implementation.

Today, almost 57% of the world’s population lives in cities, where about 80% of the world’s GDP is produced while the total area of cities is less than 3% of the world’s dry land area. Today cities, where within small areas there is a large-scale concentration of population and production, are signified by a particularly intense state of social and natural systems, as well as a significant number of development conflicts. This is primarily true in large cities, with the largest scale of production and population concentration as well as the anthropogenic impact on the environment. The main point that has a decisive influence on the process of urbanization is the conflict between the economic benefits of population and production concentration within cities, resulting in increased efficiency of social production and high levels of absolute and relative (per capita) consumption of goods, services, resources, energy and the negative environmental consequences of those processes. Therefore, balanced urban development is a key task in the transition of society as a whole to sustainable development.

Urban research has long been the subject of a wide range of scientific research. Also, it should be noted that different aspects of research, such as philosophical, economic, political-economic, cultural, etc., came to the forefront depending on the peculiarities of historical periods.

Increased attention to cities has always been due to the extremely important role that cities have played in the development of human civilization.

At the same time, for a long time the tasks currently included in the issues of sustainable development have to do with solving environmental problems of the cities due to the processes of economic development, specifics of the urban environment, and social field within it, have not been properly addressed.

Only starting in the middle of the twentieth century, this area of research has gradually become one of the priorities in the research of representatives in various fields of scientific knowledge.

The results of those developments later became the basis for the preparation and adoption of some laws within national legislative fields of individual countries and international documents establishing certain guidelines and legal mechanisms for implementation of the sustainable urban development principles, sustainable spatial development of urban settlements (Aalborg Charter “European Cities & Towns Towards Sustainability,” approved by the participants of the European

Convention on Sustainable Development of European Cities and Towns in Denmark in 1994; the European Charter for Cities II, adopted in May 2008 in Strasbourg, and others). In the EU and other developed countries, various indicators reflecting certain aspects of balanced urban development have been designed, which are used in the development of plans and strategies for the long-term development of urban settlements.

Ukraine faces several challenges that need to be addressed on the way to meeting the operational goals and objectives set out in the Global Goals 2030. This also applies to Goal 11—providing openness, security, survivability, and environmental sustainability of cities and other settlements.

Cities in Ukraine, for various reasons, have a significant number of economic, social, and other problems and occupy low positions in the ratings of balanced development. So far in Ukraine, there has been no comprehensive study on the sustainable urban development possibilities as one of the key tasks for ensuring balanced spatial development of the country as a whole in terms of its integration into the global geospace.

The monograph, offered to the reader, contains the results of socio-geographical research to assess the level of urban development sustainability in Ukraine in the pre-war period, therefore, is based on qualitative and quantitative data obtained during 2016–2021.

While assessing the balance using selected indicators and their parameterization, quantitative approaches were combined with taking into account public opinion, the public vision of sustainable urban development, and some problems of ensuring this balance based on a participatory approach.

The research to some extent is limited by the availability of statistical data in Ukraine, as the current statistical base does not allow to analyze a significant number of the balanced urban development aspects. To expand the number of indicators that affect certain aspects of balanced urban development, additional calculations, measurements, and GIS technologies were used, in particular, to assess the accessibility of green areas and water bodies.

Due to the Russian occupation of the Autonomous Republic of Crimea and parts of the Donetsk and Luhansk regions, it is not possible to obtain reliable and comprehensive statistical information about the cities in those territories. As a result, the occupied cities were not included in the list of cities to assess the level of their balance, but many respondents to the survey, conducted during the research, mentioned those cities in the context of their current problems, which can be solved only after restoring Ukraine's sovereignty over all territories within state borders.

1 DEVELOPMENT OF THE MODERN CITY IN THE CONTEXT OF AGENDA 21

1.1 Urbanization Processes at the Global, National, and Regional Levels

“The problems of the country’s development are the problems of urban development.

These are cities where the center of innovation is.”

— V. I. Nudelman¹

According to a recent UN Population Assessment and Forecast publication, each of the four global demographic “megatrends” such as population growth, population aging, migration, and urbanization has important implications for economic and social development and environmental sustainability.² Urbanization, as a global process of urban growth and the spread of urban lifestyle and living conditions (with its specific features in different countries and regions), is perhaps the starting point in assessing progress towards the Sustainable Development Goals (SDG) by 2030³ at all levels—from global to local.

¹ Vasylychenko G., Parasyuk I., Yeremenko N. (2025). Territorial community development planning. *Training manual for local government officials. Association of Ukrainian Cities*. Kyiv, 256 p.

² United Nations, Department of Economic and Social Affairs, Population Division (2019). *World Population Prospects 2019: Highlights (ST/ESA/SER.A/423)*. URL: https://reliefweb.int/sites/reliefweb.int/files/resources/WPP2019_Highlights.pdf

³ Millennium Development Goals Report 2015. (2015). United Nations, New York. 74 p.

1.1 URBANIZATION PROCESSES AT THE GLOBAL, NATIONAL, AND REGIONAL LEVELS

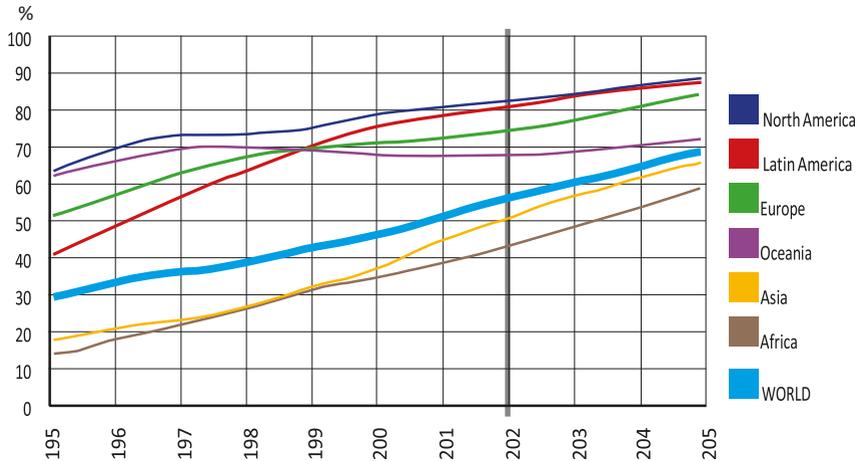


Figure 1.1.1. The share of the urban population in the main geographical regions of the world, Years 1950–2050, % of the total population.⁴

The resource-concentrating nature of urbanization determines the transformation of cities into centers of socio-economic development, and accumulated there technical, information, financial, human, and intellectual resources create there the necessary basis for effective use of the integrated potential of the territory far beyond cities. 2007 was a turning point in urban development: for the first time in human history, the urban population exceeded the rural population. During this period, Ukraine also became one of the 25 largest urban population countries.

In recent decades, the world has been unevenly but rapidly urbanizing. If in 1950 only 30% of the world's population lived in urban areas, by 2018 this share already rose to 55%. The global level of urbanization masks important differences in the regional levels of

⁴ United Nations, Department of Economic and Social Affairs, Population Division (2018). World Urbanization Prospects: The 2018 Revision, Online Edition. URL: <https://esa.un.org/unpd/wup/Publications>.

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urbanization— North America remains the most urbanized region with 82% of the urban population, in Asia, the distribution between citizens and peasants is almost equal, Africa continues to be predominantly rural with 43% of city dwellers. According to forecasts, in the middle of the 19th century the urban population will exceed the rural one in all macro-regions of the world, ranging from 59% in Africa to 89% in North America (**Fig. 1.1.1**). The rural population in the world, starting approximately in 2022, will begin to decline gradually.

As the world continues to urbanize, the sustainable development of cities is increasingly dependent on effective urban growth management. In the period 2000–2015, the area of cities grew by 1.5% annually, and the growth of urban territories was higher in low-income countries.⁵ In many countries, the trend of rapid urbanization is accompanied by the emergence of large numbers of slums, an increase in the number of people living in unsatisfactory conditions, having no legal guarantees of their residence, and increasing disparities, inequalities, and discrimination. All this is overlapped by a huge number of environmental problems. It is expected that by 2030 when the world community seeks to achieve the Sustainable Development Goals adopted in 2015, the world’s urban population will increase to 5.2 billion people. Thus, it will reach the size of the world’s total population (urban and rural) in the late 1980s, when the basic postulates of the sustainable development concept were formulated. By the middle of the 19th century, the world’s urban population might reach 6.7 billion.

No country has achieved the status of even a middle level of development without being included in the global process of urbanization. Cities generate 80% of the world’s economic activity and have a huge impact on growth, inclusiveness, and sustainability. Proximity provided by urban agglomeration is a driver of economic development, innovation, and ideas that promote prosperity, while the spatial concentration in cities increases vulnerability to natural hazards

⁵ Global State of Metropolis 2020—Population Data Booklet (2020). United Nations Human Settlements Programme. URL: https://unhabitat.org/sites/default/files/2020/09/gsm-population-data-booklet-2020_3.pdf

and the effects of climate change, as well as the effects of economic or social crisis.⁶

The problems of urban progress have long been considered within the global concept of sustainable development, and the implementation of the latter is accompanied by the leaning of consciousness towards

“urban” thinking, urban initiatives, and projects. Urbanization is a historical phenomenon, so there is no generally accepted definition of it even among the structural units of the United Nations (**Table 1.1.1**). Obviously, *for each stage of development of society should be developed its own definition of urbanization*, given the nonlinearity and inertia of this process⁷.

As the problems of economic, social, and environmental development are more intense in cities, the issues of urban development are rightly included in agreements and organizational measures at the international level. Cities are seen as “pioneers” in implementing the results of scientific and technological progress in order to form a competitive strategic perspective for the development of regions and states and ensure high living standards. In turn, the quality of life of the population should be considered not as a simple set of social indicators of development, but as a systemic object of the strategy to ensure balanced development of territories of different levels, including cities, which connects economic, investment decisions with the targeted results of improving living conditions (especially environmental).

⁶ The New Urban Agenda Illustrated (2020). URL: https://unhabitat.org/sites/default/files/2020/12/nua_handbook_14dec2020_2.pdf

⁷ Gukalova, I. V. (2018). Quality of life as a goal of urban development concepts: conclusions for Ukraine. *Ukrainian Geographical Journal*, 1(101), 30–38. DOI: <https://doi.org/10.15407/ugz2018.01.030>

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Table 1.1.1. Definition of the term *urbanization* by international organizations (continuation)

Definition	Source
Urban growth due to the relocation of people from rural areas in search of better jobs and better living conditions.	THE WORLD BANK [URL: http://www.un.org/ru/youthink/urbanization.shtml]
The process of population concentration in cities as a result of migration from rural areas or an increase in the number of urban areas.	UN-HABITAT [URL: http://unhabitat.org/timeto-think-urban-un-habitat-brochure-2013]

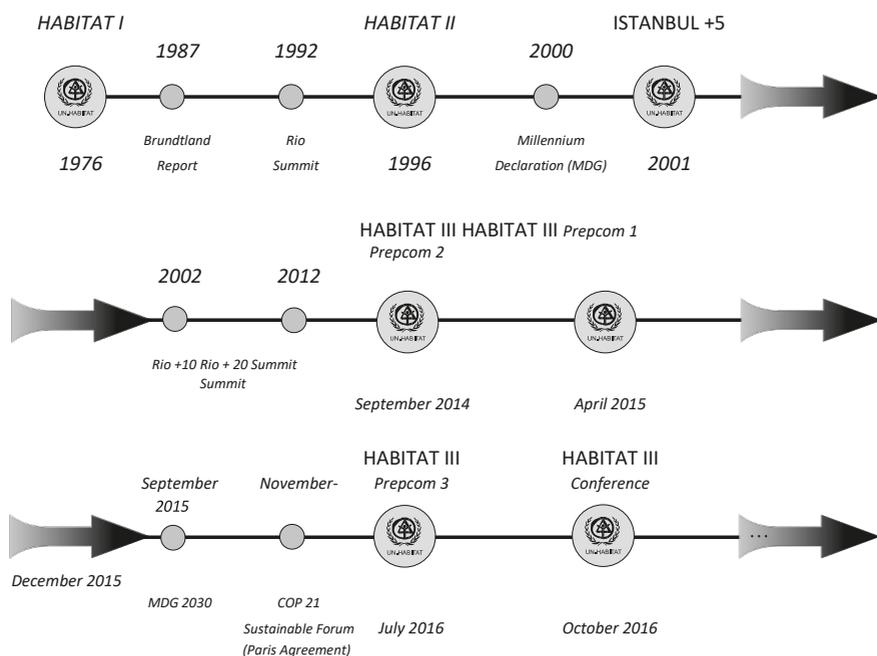


Figure 1.1.2. Problems of urban development in chronological terms of the UN international cooperation (according to [The New Urban Agenda]).

Table 1.1.1. Definition of the term *urbanization* by international organizations (continuation)

Definition	Source
The process describes changes in the population of small rural settlements, where agriculture is the dominant economic activity, and the population is concentrated in large, densely populated urban settlements, which are characterized by the dominance of industry and services.	UNFPA UN Population Fund [URL: http://www.unfpa.org/urbanization]
The process of increase in the share of the urban population is accompanied by an increase in the economic, political, and cultural significance of cities compared to rural areas.	UN Department on economic and social issues. [URL: http://gtmarket.ru/ratings/urbanization-index/info]
The global process of social and ecological landscape changes on every continent. It is the result of migration from rural areas which adds to the natural urban demographic growth.	WHO [URL: http://www.who.int/globalchange/ecosystems/urbanization/ru/]

Recognition of the exclusive role of urban settlements in the process of ensuring the balanced development of the world is reflected in the chronology of events related to initiatives, activities, and documents of sustainable development, including settlements (**Fig. 1.1.2**).

Almost forty years have passed since the decision to establish the United Nations Human Settlements Program (UN-Habitat), and since then the relevance of international cooperation in the field of settlement development has been steadily growing. Habitat conferences are held every 20 years and set a global agenda for human development policies at various territorial levels. Habitat I took place in 1976 in Vancouver (Canada), Habitat II—in 1996 in Istanbul (Turkey), and Habitat III—in 2016 in Quito (Ecuador). Key UN meetings on sustainable development, such as the World Summit on Sustainable Development in 2002 and Rio + 20 in 2012, have consistently reaffirmed the core provisions of the Habitat Program.

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The key topic of the last Habitat III conference was sustainable urban development, which was based on two main arguments: 1) global urbanization of poverty, i. e. spread of the latter not only in rural but more intensively in urban settlements; 2) the defining role of cities in ensuring environmental sustainability and climate change. Article 27 of the New Urban Development Agenda, adopted at that conference, states that national, subnational, and local governments and all interested parties should commit themselves to promoting the equal distribution of opportunities and benefits that urbanization has to offer and which allow all residents, regardless of whether they live in organized or unorganized settlements, have a normal, dignified life that brings satisfaction, and fully realize their human potential.⁸

The principles of creating comfort and favorable living conditions for the population in the framework of sustainable urban development are laid down in the activities of the global association of cities and local governments ICLEI—Local Governments for Sustainability (International Council for Local Environmental Initiatives).⁹ Similar principles are laid down in the coordinate system for European sustainable cities (The Reference Framework for Sustainable Cities: a European Vision).¹⁰

Ukraine is one of the most highly urbanized countries in the world and ranks 25th among European countries,¹¹ the level of urbanization is 69.6% (as of early 2021), excluding the temporarily occupied territory of Crimea and Sevastopol). The level of urbanization is very differentiated by region, due to historical, socio-economic, cultural, and

⁸ The New Urban Agenda. URL: <http://habitat3.org/the-new-urban-agenda>

⁹ Official site of the International Council for Local Environmental Initiatives. URL: <http://www.iclei.org>

¹⁰ Council of European Municipalities and Regions. URL: <http://www.ccre.org/activites/view/25#>

¹¹ Report of the Cabinet of Ministers of Ukraine on the state of implementation of the General Scheme of Spatial Planning of Ukraine for 2018 (2019). Ministry of Development of Communities and Territories of Ukraine, Kyiv, 167 p. URL: <https://www.minregion.gov.ua/wp-content/uploads/2020/01/Monitoring-GSPTU-za-2018-rik.pdf>

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spiritual factors. Military and political events of 2014 further aggravated the economic situation and rapid depopulation. Under such conditions, the dynamics of urbanization processes slowed down somewhat and developed signs of instability. Over the last decade, the following 5 regions have continually remained highly urbanized (the share of the urban population is more than 70%)—Dnipropetrovsk, Donetsk, Zaporizhia, Luhansk, and Kharkiv, 5 other regions have lower than 50% urbanization—Zakarpattia, Ivano-Frankivsk, Rivne, Ternopil and Chernivtsi.

Among Ukrainian regions the largest number of cities is concentrated in Donetsk (52), Lviv (44), Luhansk (37), and Kyiv (27) regions, the smallest—in Kherson (9), Volyn, Zakarpattia, Rivne, and Chernivtsi regions (11 in each). The most urbanized are the eastern and some central regions, the so-called “areas of the first industrial urbanization,” and the least urbanized are the western and the southern ones. In the background of the growing level of general urbanization in Ukraine, there is a significant reduction in the urban population in the largest cities. The insignificant positive dynamics of urbanization processes in Ukraine are a consequence not only of the growth in the absolute number of inhabitants in existing cities but also the transition of a number of other settlements to the category of cities. As of January 1, 2021, the city system of Ukraine is represented by 461 cities (2 cities with special status, 187 cities of regional, and 272 cities of district significance) and 882 urbantype settlements. The average population of the Ukrainian city is 62 thousand people. Characterization of the urbanization process development can be performed based on the intensity (**Fig. 1.1.3**), which demonstrates the peculiarities of urbanization in Ukraine during 2010–2020.

In Ukraine, with significant depopulation in background, there is a relationship between the intensity of urbanization processes and indicators of natural and migratory movements. High rates of urban population growth in the last decade are characteristic of the regions of Podillya, the Center of Ukraine, even more than in many western regions. Moreover, this is happening mainly on account of regional

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centers, large cities and in most cases is accompanied by a significant decrease in the population of the regions (especially noticeable in Chernihiv, Sumy, and Kirovohrad regions).

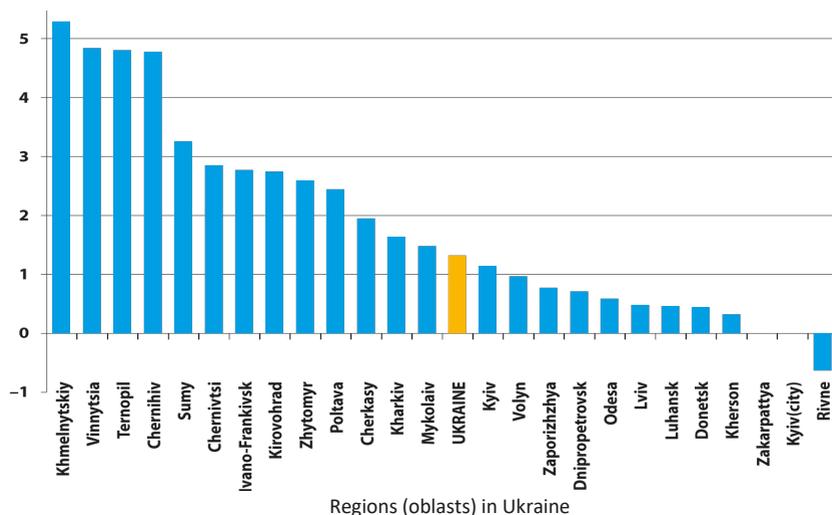


Figure 1.1.3. Ukraine regions by the coefficient of urbanization intensity. For the period 2010–2020 (calculated according to data).¹²

All this leads to the “compression” of the socio-economic space coefficient of urbanization in favor of regional centers, while peripheral areas continue to lose human resources. This exacerbates spatial imbalances, which do not contribute to the balanced development of cities in the regions in general. The accuracy of the demographic data is low, however, because there is no new census in Ukraine (postponed indefinitely), so the data can be updated only after the census.

As the population of Ukrainian cities is growing significantly, which is associated with the intensification of housing, socio-economic activities (including in the suburbs), and investment inflows but with a number of social and environmental problems background, there is a

¹² Population of Ukraine. (2021). URL: http://database.ukrcensus.gov.ua/MULT/Dialog/statfile_c.asp

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need for a differentiated approach to ensure urban development, update strategic goals and align the goals of sustainable urban development with regional and national priorities.

1.2 Principles and Strategic Guidelines of International Policy of Integrated Urban Development

The importance of cities in the modern development of countries and regions has led to the emergence of a number of documents at the global and pan-European level, which in one way or another determine the direction of urban development, highlight major challenges in this area and the ways to overcome them. In general, the concept of urban development is understood as the evolution of a certain (urbanized) area, and activities to strengthen its economic, social, environmental, and cultural potential.

Obviously that the global policy-making framework is the United Nations Human Settlements Program (UN-Habitat, formerly the United Nations Center for Human Settlements). The main activities laid down since Habitat I (1976) and Habitat II (1996) are the provision of adequate housing for all and sustainable urban development. Finally, in 2016, the New Urban Development Program (Habitat III) was adopted. Prior to Habitat III, the Working Group assessed the implementation of key sustainable development documents relevant to cities and towns. It is about the Agenda for the 21st century (1992), Istanbul Declaration (1996), Millennium Development Goals (2000), Johannesburg Plan of Action (2002), annual UN-Habitat resolutions, Millennium Development Goals Assessment Summit (2010), Nagoya Summit of Cities and Biodiversity (2010). Based on the conducted research some gaps were identified and the ways to overcome them are among the tasks of the Program.

In the context of the 2030 Goals, sustainable urban development is defined as “a spatial manifestation of urban development processes” which shape the developed environment, with certain norms, institutions and governance systems that maximize the potential of individuals, households, and societies, optimize a wide range of

services in such way that houses, neighborhoods, small and large cities are planned, built, restored and united on the basis of containment of adverse effects on the environment while ensuring the quality of life, needs, and livelihoods of current and future populations.¹³

The commitments made in 2016 address such areas as:

- Sustainable urban development for social integration and to overcome poverty;
- Sustainable and social urban prosperity and opportunities for all;
- Environmentally sustainable and stable urban development.

Therefore, the emphasis is made on ensuring the inclusiveness of urban development and environmental aspects of urban development.

This is largely in line with the objectives of Goal 11 “Ensuring openness, security, sustainability and environmental sustainability of cities and towns” (**Fig. 1.2.1**).

Although the focus on urban development in EU politics dates back to the 1970s, especially in the context of the Council of Europe’s Conference of Ministers responsible for Regional / Spatial Planning (CEMAT),¹⁴ the emphasis on balance was strengthened in the late twentieth century after the Rio-1992 summit and adoption of the Agenda for the 21st Century; with adoption of the European Charter of Cities (1992), the Aalborg Charter “Cities of Europe Towards Sustainable Development” (1994), several European Commission resolutions, particularly “the Urban Agenda in the European Union”¹⁵ (1997), “Sustainable Urban Development in the European Union: Framework for Action (1998)”,¹⁶ etc.

¹³ https://www.un.org/en/development/desa/policy/untaskteam_undf/groupb_unhabitat_suscities.pdf

¹⁴ Urban development became the cross-cutting theme of most CEMAT conferences, while in 1976 a separate conference “Urbanization and Regional Planning” was dedicated to it.

¹⁵ Towards an urban agenda in the European Union (COM(1997)0197).

¹⁶ Sustainable Urban Development in the European Union: A Framework for Action (COM(1998)0605).

1.2 PRINCIPLES AND STRATEGIC GUIDELINES
OF INTERNATIONAL POLICY OF INTEGRATED URBAN DEVELOPMENT

<p>11.1 By 2030, ensure access for all to adequate, safe, and affordable housing and basic Services and upgrade slums;</p> <p>11.2 By 2030, provide access to safe, affordable, accessible, and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities, and older persons;</p> <p>11.3 By 2030, enhance inclusive and sustainable urbanization and capacity for participatory, integrated, and sustainable human settlement planning and management in all countries;</p> <p>11.4 Strengthen efforts to protect and safeguard the world’s cultural and natural heritage;</p> <p>11.5 By 2030, significantly reduce the number of deaths and the number of people affected and substantially decrease the direct economic losses relative to the global gross domestic product caused by disasters, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations;</p> <p>11.6 By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management;</p> <p>11.7 By 2030, provide universal access to safe, inclusive, and accessible, green and public spaces in particular for women and children, older persons, and persons with disabilities;</p> <p>11.a Support positive economic, social, and environmental links between urban, peri-urban, and rural areas by strengthening national and regional development planning;</p>
<p>11.b By 2020, substantially increase the number of cities and human settlements adopting and implementing integrated policies and plans towards inclusion, resource efficiency, mitigation and adaptation to climate change, resilience to disasters, and develop and implement, in line with the Sendai Framework for Disaster Risk Reduction 2015–2030, holistic disaster risk management at all levels;</p>

Figure 1.2.1. Objectives aimed at achieving Goal 11.

The last document defined such goals of city policy as ensuring economic prosperity and employment in cities; promoting equality, social inclusiveness, and the revitalization of urban areas; protection and improvement of the urban environment on the way to local and

global balance; promoting good urban governance and empowerment of the local ones.¹⁷

A little later, the Leipzig Charter (2007)¹⁸ appeared and the “Manifesto of New Urbanism” was adopted in Strasbourg in 2008. The first of the two documents cite the need for:

- to develop in their member states a political initiative aimed at the integration of the basic principles of the Leipzig Charter for a Sustainable European City into regional and local development policies;
- develop tools for integrated urban development, promote the improvement of management structures for their implementation and create the necessary framework conditions at the national level;
- promote balanced spatial development based on the European polycentric urban system.

The manifesto, in turn, focuses on the “city of the city residents—citizens,” solidarity, the role of knowledge, and ultimately—environmental sustainability, committing to reduce anthropogenic impact, conserve natural resources, support biodiversity, ensure universal access to public structures and their networks and energy efficiency.¹⁹ Approximately in the same period, the Marseille Declaration (2008)²⁰ on the system of balanced cities and the Toledo Declaration²⁰ (2010) on integrated urban regeneration in times of economic crisis were adopted.

In 2014, a new document of the European Commission “Urban dimension of EU policy—the main features of the EU Urban Agenda”²¹

¹⁷ <https://www.ludenet.org/projects-files/files/EU%20Urban%20Agenda.pdf>

¹⁸ Leipzig Charter on sustainable European cities, adopted at the Informal Council Meeting of Ministers on urban development.

¹⁹ <http://www.slg-coe.org.ua/wp-content/uploads/2015/05/Principle-9.-European-chart.pdf>

²⁰ Marseille Declaration.

²⁰ Toledo Declaration.

²¹ Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions the urban dimension of EU policies—key features of an EU urban agenda /* com/2014/0490 final */²³ The New Leipzig Charter.

was published. It analyzes the challenges and potential in urban Europe, and relevant policies, and identifies the need for a new agenda, and the global dimension of urban development.

Finally, in 2020, the “New Leipzig Charter”,²³ aimed at strengthening cooperation at various territorial levels, using the transformational power of cities to implement relevant European and global agreements, was presented. The following key principles of municipal governance are defined there: urban policy for the common good, integrated approach, participation and co-creation, multilevel governance, and place-based approach. At the same time, there are three dimensions— justice, environmental friendliness, and productivity with digitalization added to them, and there are three spatial levels of European cities, where everyday interactions of citizens take place: districts, city (according to administrative and political boundaries), and functional region.²² Urban development was also ensured within the general framework of spatial development policy. Particularly, in the European Spatial Development Perspective approved in 2000, the goal of “Polycentric Spatial Development and New Urban-Rural Relations” envisages the formation of attractive and competitive cities and urban regions, which provides for:

- Expanding the strategic role of metropolitan regions and “gate cities,” with a special focus on the development of EU peripheral regions;
- Improving the economic situation, environment, and service infrastructure in cities, especially in the least economically advantageous regions, in order to make them more attractive for mobile investment;
- Promoting the strategy of economic diversification in cities that are too dependent on the development of one type of economic

²² Risi, F., Maxwell, L., Scheurer, L., Grisel, M. (2020). The New Leipzig Charter, and the JRC’s urban activities: Exploring the role of science for policy post-2020, Publications Office of the European Union, Luxembourg, 2020, ISBN 978-92-76-26954-0, DOI:10.2760/232000, JRC122792

- activity, as well as supporting the economic development of large and small cities in the least favorable regions;
- Promoting integrated urban development strategies that take into account social and functional diversity. Particular attention should be paid to overcoming social “exclusivity,” as well as recycling and/or restructuring within overexploited or abandoned urban areas;
 - Promoting sensible management of urban ecosystems;
 - Promoting better accessibility of cities and metropolitan regions through the implementation of appropriate land allocation and planning policies, which should encourage the mixing of urban functions and the use of public transport;
 - Support for effective methods of reducing the uncontrolled expansion of urban areas; reducing excessive pressure on settlements, especially in coastal regions.

Urbanized territories and cities are not the last on the list of both EU Territorial Agendas (2020, 2030)^{23, 24}, with an emphasis on ensuring the integrated development of both cities and related territories.

It should also be noted that there is support for the implementation of balanced urban policy through the formation of such networks as URBACT (exchange and training program for sustainable urban development, more than 500 cities in 29 countries), UDN (urban development network, more than 500 cities, and urban areas) and IUC (international urban cooperation). For a long time, the implementation of projects was carried out by the URBAN initiative, which provided an integrated approach to strengthening competitiveness, overcoming social exclusion, and ecological regeneration.

Today, the key thematic areas of the EU Urban Agenda are the following: air quality, circular economy, adaptation to climate change, culture and cultural heritage, transition to digitalization, transformation in the energy sphere, housing, inclusion of migrants and

²³ https://ec.europa.eu/regional_policy/en/information/publications/communications/2011/territorial-agenda-of-the-european-union-2020

²⁴ <https://territorialagenda.eu/>

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OF INTERNATIONAL POLICY OF INTEGRATED URBAN DEVELOPMENT

refugees, ensuring innovative and responsible public procurement, jobs and skills in the local economy, sustainable nature management, urban mobility, urban poverty, security in public places.

Therefore, in general, considering the approaches and initiatives for urban development at the global and pan-European levels, we can highlight the principles of complexity, resource efficiency, technology, inclusiveness, and creativity. It is also necessary to emphasize the strategic importance of communication systems formed on the basis of cities, which, on the one hand, promotes the development of other territories, accessibility of urban benefits for their residents, and on the other, creates additional opportunities for the development of the city. The role of public participation and the scientific community is also significant in ensuring balanced urban development.

1.3 International experience in indicating urban development, taking into account the requirements of the Agenda for the 21st c., and the 2030 Goals

One of the components of successful urban development management is an effective system of indicators that allows evaluation, and monitoring of urban space and its changes, and also verifies the taken measures.

The problem of indicating sustainable development, particularly the urban areas, has been considered at the global level and in the EU for a long time. There are similar developments also in the post-Soviet space.^{25, 26} When referring directly to the assessment of city sustainability, it is also necessary to look into the objective and subjective features of this concept. One of the advocates of urban planning, K. Lynch in his works in the mid-twentieth century, identifies among the signs of a “good city” such features as expressiveness, identity, structure, and meaning.²⁷ Somewhat later, in the 1980s, he talks about vitality, conformity, meaning, accessibility and control.^{28, 29}

²⁵ S. A. Lisovsky.

²⁶ Scientific principles of developing a sustainable development strategy of Ukraine. (2012). Monograph / IMPEER NAS of Ukraine, IG of Ukraine, INMPE NAS of Ukraine. Odesa. *IPREER NAS of Ukraine*. 714 p.

²⁷ Lynch, K. (1960). *The image of the city*. MIT press.

²⁸ Lynch, Kevin. (1981). *A theory of good city form*. Cambridge, MA: MIT Press.

²⁹ Reza Banai, & Melanie A. Rapino (2009). Urban theory since A Theory of Good City Form (1981)—a progress review, *Journal of Urbanism: International Research on Placemaking and Urban Sustainability*, 2:3, 259–276, DOI: 10.1080/17549170903466095

At the end of the 1990s, under the influence of the concepts of sustainability new features were added to the definition of a high-quality urban environment, in particular, adaptability, mixed-use, movement, landscaping, and so on.³⁰ In the 21st c. the elements of constructing a cognitive map of the urban environment (landmarks) defined by K. Lynch are already correlated with virtual space, that is the actual image of the city is being transformed under the influence of digital technologies. The dimension of sustainability is also expanding to include urban compactness, urban-rural permeability, vehicle-free mobility, clean technologies,³¹ balanced accessibility, high-quality public spaces, diverse urban environments, dynamic economy, inclusive planning, and integrated decision-making.³² Therefore, when moving on to the assessments, it is important not only to understand the essence of the concepts of sustainability and city, it is necessary to understand the content of social transformations, reflections on them in the urban environment, and the specifics of individual indicators and territories.

The topic of relevant global policy became relevant in the second half of the twentieth century. Thus, back in 1992, the Agenda for the 21st Century (Chapter 40) stated—“in order to create a solid basis for the decision-making process at all levels and promote the facilitation of self-regulatory sustainability of integrated ecological and systems of development, it is necessary to have the sustainable development indicators.”

Subsequently, multi-purpose indicator systems were developed by the United Nations, the World Bank, the Organization for Economic Cooperation and Development (OECD), the European Commission, the Environmental Modeling Committee (SSEM), the Scientific Committee

³⁰ Montgomery, J. (1998). Making a city: urbanity, vitality and urban design. *Journal of Urban Design*, 3, 93–116.

³¹ Fattahi, Kaveh & Kobayashi, Hidetsugu. (2009). City Imaging After Kevin Lynch. 2009 WRI World Congress on Computer Science and Information Engineering, *CSIE 2009*. 1. 283–287. DOI: 10.1109/CSIE.2009.895.

³² Kenworthy, J. R. (2006). The eco-city: ten key transport and planning dimensions for sustainable city development. *Environment and urbanization*, 18, 67–85.

on the Environment (SCOPE), and others. These include the Sustainable Development Indicators System proposed by the United Nations Commission on Sustainable Development (DAC), the System for Integrated Environmental and Economic Accounting, the Genuine Savings Index, and the OECD Environmental Indicators Program a set of the European Environment Agency indicators and indicators of the EU sustainable development, etc.

One of the most developed approaches to assessing the sustainability of urban development was the methodology of the working group of the same name, developed at the University of Pennsylvania, the creation of which was influenced by the theory of a "good city." Having identified the traditional dimensions of sustainable urban development: social well-being, economic opportunities, and the quality of the environment, the researchers also agreed on the elements needed to ensure each of them³³:

- health, safety, local or civic identity/sense of place, access to decent housing and services, access to public recreation and open space, access to various means of transportation (social dimension);
- diversified and competitive local and regional economy, transport, and other infrastructure coordinated with the land management, plans of growth using available assets, access to capital and credit, access to education, work, and study (economic opportunities);
- efficient use of land and natural resources, minimization of waste/pollution and their management, climate change and mitigation of the natural disasters consequences, adaptation and sustainability, environmentally friendly transportation, diverse natural environment, and functional ecosystems (environment).

According to this model, 6 principles of viability were proposed, each of which, except the fifth, includes 3 topics, elements, and indicators, such as a variety of transportation, promotion of fair and affordable housing, increase in economic competitiveness, supporting existing communities, coordinating and using federal policy and

³³ Amy J. Lynch et al. (2011). Sustainable urban development indicators for the United States. 62 p.

investment, understanding the value of communities and neighborhoods.

Prior to the 2030 Agenda and related targets adoption, the key EU sustainable development indicators were identified by: socio-economic development, balanced consumption and production, social inclusiveness, demographic change, public health, climate change and energy, balanced transport, and natural resources. Currently, the indicators are defined in the section of 17 Objectives 2030. Regarding the Objective 11 “Sustainable Cities and Communities,” they are presented in **Table 1.3.1**.

Table 1.3.1. Indicators of sustainable development according to Goal 11 (continuation)

<i>Global indicators</i> ³⁴
<ul style="list-style-type: none"> • Proportion of urban population living in slums, informal settlements, or inadequate housing,
<ul style="list-style-type: none"> • Proportion of the population that has convenient access to public transport, by sex, age, and persons with disabilities.
<ul style="list-style-type: none"> • Ratio of land consumption rate to the population growth rate.
<ul style="list-style-type: none"> • Proportion of cities with a direct participation structure of civil society in urban planning and management that operate regularly and democratically.
<ul style="list-style-type: none"> • Total per capita expenditure on the preservation, protection, and conservation of all cultural and natural heritage, by the source of funding (public, private), type of heritage (cultural, natural), and level of government (national, regional, and local/municipal).
<ul style="list-style-type: none"> • Number of deaths, missing persons, and directly affected persons attributed to disasters per 100,000 population.
<ul style="list-style-type: none"> • Direct economic loss in relation to global GDP, damage to critical infrastructure, and number of disruptions to basic services, attributed to disasters.
<ul style="list-style-type: none"> • Proportion of municipal solid waste collected and managed in controlled facilities out of total municipal waste generated, by cities.

³⁴ <https://unstats.un.org/sdgs/metadata/?Text=&Goal=11&Target=>

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<ul style="list-style-type: none"> • Annual mean levels of fine particulate matter (e. g. PM2.5 and PM10) in cities (population weighted).
<ul style="list-style-type: none"> • Average share of the built-up area of cities that is open space for public use for all, by sex, age, and persons with disabilities.
<ul style="list-style-type: none"> • Proportion of person victim of physical or sexual harassment, by sex, age, disability status, and place of occurrence, in the previous 12 months.

Table 1.3.1. Indicators of sustainable development according to Goal 11 (continuation)

<ul style="list-style-type: none"> • Number of countries that have national urban policies or regional development plans that (a) respond to population dynamics; (b) ensure balanced territorial development, and (c) increase local fiscal space.
<ul style="list-style-type: none"> • Number of countries that adopt and implement national disaster risk reduction strategies in line with the Sendai Framework for Disaster Risk Reduction 2015–2030.
<ul style="list-style-type: none"> • Proportion of local governments that adopt and implement local disaster risk reduction strategies in line with national disaster risk reduction strategies.
<i>EU indicators</i>³⁵
<ul style="list-style-type: none"> • Overcrowding rate by poverty status.
<ul style="list-style-type: none"> • Population living in households considering that they suffer from noise, by poverty status.
<ul style="list-style-type: none"> • Settlement area per capital.
<ul style="list-style-type: none"> • Road traffic deaths, by type of roads.
<ul style="list-style-type: none"> • Exposure to air pollution by particulate matter.
<ul style="list-style-type: none"> • Recycling rate of municipal waste.
<ul style="list-style-type: none"> • Population living in a dwelling with a leaking roof, damp walls, floors, or foundation, or rot in window frames of the floor by poverty status.
<ul style="list-style-type: none"> • Population connected to at least secondary wastewater treatment.
<ul style="list-style-type: none"> • Share of buses and trains in total passenger transport.
<ul style="list-style-type: none"> • Population reporting occurrence of crime, violence, or vandalism in their area by poverty status.

Today, the assessment of the balanced development of European cities is also carried out on the basis of progress in achieving the 2030 Goals. As expected the top of this ranking is occupied by Scandinavian

³⁵ <https://ec.europa.eu/eurostat/web/sdi/sustainable-cities-and-communities>

capitals—Oslo, Stockholm, Helsinki, and Copenhagen. At the same time, the assessment of urban sustainability according to the methodology of Schrodgers European Sustainable Cities Index³⁶ is somewhat different. It takes into account 13 balanced environmental policies in areas such as renewable energy targets, clean public transport, charging stations for public electric vehicles, disposable plastics, air quality, climate plans, carbon neutrality targets, and waste policy. Accordingly, the leading positions are occupied by Amsterdam, London, and Paris, followed by Copenhagen, Oslo, and Stockholm.

A separate niche is occupied by currently popular urban development ratings. The best known of these are the Quality of Living City Ranking,³⁷ the Best Cities scores, and the Sustainable Cities index.³⁸

In particular, while assessing the quality of life in cities, 39 weighted coefficients were used in 10 categories: consumer goods, economic environment, housing, medical and health factors, natural environment, political and social environment, utilities and transport, leisure, schools and education and socio-cultural environment. In 2019 (in 2020 the index was not calculated due to the COVID-19 pandemic), Vienna, Zurich, Vancouver, Munich, and Auckland topped the list.

The Index of the best cities, in turn, demonstrates a slightly different approach, using the categories: promotion (branding), location, product (including institutions, attractions, infrastructure), welfare, people, and programming (cultural and artistic aspects, cuisine, etc.). According to this version, the five leaders include global cities—London, Paris, New York, Moscow, and Dubai. It should be noted that the calculations are almost irrelevant to the assessment of the quality of the environment (the category of “place” includes: the average number of sunny days, homicide rate, attractions, quality of park areas, and outdoor activities recommended by the residents). At the same

³⁶ <https://www.schrodgers.com/en/schrodgersglobalcities/resources/schrodgers-european-sustainable-cities-index/>

³⁷ <https://mobilityexchange.mercer.com/insights/quality-of-living-rankings>

³⁸ https://www.arcadis.com/campaigns/citizencentriccities/images/%7B1d5ae7e2-a348-4b6e-b1d7-6d94fa7d7567%7Dsustainable_cities_index_2018_arcadis.pdf

time, the indicators include the number of global corporations' headquarters, the number of destinations for direct flights, the size of the largest conference hall, the number of residents born abroad, etc.).

The index of sustainable urban development is based on the assessment of three blocks—people, environment, and economy. In the last available report (for 2018) the number of categories and indicators has increased over time reaching 31 and 48, respectively. These are, in particular, the categories³⁹:

- education, health, demographic situation, income inequality, consumer accessibility, work-life balance, crime rate, ***access to public transport services, transport programs and digital opportunities, cultural environment, cost of broadband access, digital public services, accessibility Wi-Fi*** (people);
- environmental risks, green spaces, energy use, air pollution, greenhouse gas emissions, waste management, drinking water and sanitation, cycling infrastructure, incentives for electric vehicles, carbon capture and storage technologies, disaster monitoring (environment);
- transport infrastructure, economic development, ease of doing business, tourism, connectivity, employment, ranking of leading urban universities in the field of technology and engineering (economy).

Thus, among the five most balanced cities were London, Stockholm, Edinburgh, Singapore, and Vienna. Also interesting and worthwhile is the authors' attempt to select clusters of cities from the sample: balanced innovators, post-industrial opportunists, evolutionary cities, and fast-growing megacities. The "Balanced innovators" (35) include 28 cities out of 35 with the highest rating. The other seven leading cities, including three Canadian cities, fell into the category of "post-industrial opportunists."

It should be noted that of particular importance in assessing urban development are the so-called spatial indicators, which are

³⁹ The categories after the improvement of the methodology are highlighted in bold italics.

determined based on the structure of land use, construction, accessibility of a range of social services, and transport accessibility. Examples of such indicators proposed for the assessment of the urban green areas are the share of green areas, their accessibility, and provision for residents, the height and volume of green plantations, and the share of built-up areas.^{40, 41}

The scale of the evaluation remains no less important. The use of indicators developed for the global and macro-regional levels is not entirely appropriate at the local level when it comes to the development of small towns. In this context, it is appropriate to bring out the example of several European countries (**Table 1.3.2**). When developing such a system of indicators in Slovenia, it was proposed to determine the same number of indicators for each dimension of sustainable development for adequate representation. According to the research principles, 12 indicators⁴² have been proposed. In Latvia, 108 indicators were included in the study, 81 of which have already been used in the previous policy documents. At the same time, 15 indicators were considered additional.

⁴⁰ Dosch F., Neubauer U. (2016). Kennwerte für grüne Infrastruktur. Sicherung städtischer Freiraumqualität durch Richt- und Orientierungswerte? *RaumPlanung* 185 : 15–39.

⁴¹ Grunewald K., Richter B., Meinel G., Herold H., & Syrbe R.-U. (2017a). Proposal of indicators regarding the provision and accessibility of green spaces for assessing the ecosystem service “recreation in the city” in Germany. *Int J Biodivers Sci Ecosyst Serv Manage* 13(2):26–39. DOI: .1080/21513732.2017.1283361

⁴² Sustainable development of small towns. (2007). Brno.

Table 1.3.2. Small cities sustainable development indicators: Slovenia and Latvia

<i>Indicators, Slovenia</i>	<i>Indicators, Latvia</i>
<i>Economic dimension</i>	
<p>Income, city budget, employment, share of employees by economic sectors, the cost of land for construction and housing</p>	<p>Distribution of enterprises and employees by industries, percentage of value added from enterprises, foreign direct investment (capital/profits), number of tourists, number of tourist nights, hotel occupancy, dynamics of establishment and liquidation of local enterprises, number of cultural events, number of cultural events, quality coverage of streets and sidewalks, the percentage of roads in good condition, the distribution of modes of transport (the percentage of each mode of transport, i.e. private, public, bicycle, pedestrian) average travel time and fare, percentage of energy consumed in the city from renewable sources, access to local services at a short distance, percentage of houses with communications (including electricity, water, sewerage, gas, heating, internet, telephone lines), number of public places with Wi-Fi, e-government; availability of electronic services and use in communication with the municipality.</p>
<i>Social dimension</i>	
<p>Aging index, unemployment, the share of the population with higher education, availability of social services</p>	<p>The population of the city; the average age of the population; mortality; life expectancy; residents by the level of education, especially with higher education; the number of students in schools; the number of children who do not attend school; the number of children with special needs who attend school; percentage of children receiving preschool education; education financing; education and age of teachers; the number of interest-based training programs; the number of foreign students in universities; the number of people receiving financial support (and its size); the amount of housing subsidy; poverty risk index; income sharing measures and inequality; the number of help centers; unemployment structure; comments on the site; participation in public forums; visiting the gym; the number of youth projects; activity of residents in public organizations; the number of residents who are members of non-governmental organizations; the number of non-governmental organizations; public participation in city elections; index of citizens' satisfaction with life.</p>

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Ecological dimension	
Index of environmental stability, air quality, wastewater management, waste management	Area of green plantations (km ²); number of green space reconstruction projects; share of protected areas; developed programs of environmental measures; financing of soil reclamation, disposal of hazardous waste and environmental projects; regenerated areas (diverse environment) (km ²); Number of protected species of animals and plants; percentage of protected areas / reservoirs / waterways / parks; number of pets; number of vaccinated pets; financing of soil reclamation, disposal of hazardous waste and environmental projects; sulfur dioxide emissions; nitrogen dioxide emissions; concentration of solid particles (PM10, PM2.5 mg/m ³); number of environmentally hazardous facilities; drinking water quality (quotas); availability of drinking water; wastewater quality; the percentage of the population with access to water supply or alternative (and efficient) sanitary infrastructure; the water quality of the Gauja River (lower compared to the upper course); percentage of heat loss; heat costs; quality and safety of heating; ecological footprint; number of information seminars and training courses (on the environment); number of public initiatives on environmental protection; number of schools with environmental education programs.

Developed based on ⁴³, and ⁴⁴

The results showed that 52 of the 81 current indicators were considered relevant, but 24 indicators were optional.⁴⁵ 18 economic, 28 social, and 26 environmental indicators are proposed.

Given the significant differences between these examples and the experience of other countries, the indicator systems at the local level need special attention and will have significant differences due to the

⁴³ Sustainable development of small towns. (2007). Brno.

⁴⁴ Valtenbergs Visvaldis, González Ainhoa, & Piziks Ralfs. (2013). Selecting Indicators for Sustainable Development of Small Towns: The Case of Valmiera Municipality, *Procedia Computer Science*, Vol. 26. 21–32, <https://doi.org/10.1016/j.procs.2013.12.004>

⁴⁵ Valtenbergs Visvaldis, González Ainhoa, & Piziks Ralfs. (2013). Selecting Indicators for Sustainable Development of Small Towns: The Case of Valmiera Municipality, *Procedia Computer Science*, Vol. 26. 21–32, <https://doi.org/10.1016/j.procs.2013.12.004>.

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availability of data, physical parameters of a territory, management approaches, etc. In general, to consider international experience is a component necessary for the development of indicator systems at the national, regional, and local levels. Based on the analysis, the required components of the research methodology should be three developed dimensions of sustainability (social, economic, environmental), use of spatial indicators (accessibility, territory availability, etc.), taken into account the requirements and expectations of the residents regarding quality and forms of urban space (mobility parameters, quality of public spaces and resources consumed, inclusiveness, network integration).

1.4 Best practices in urban management and planning: the potential for their implementation in Ukraine

Serious attention to the need to regulate urban development was paid to by planners and scientists in the 1970s and 1980s, during the period of intensification of urbanization. Research initiatives on the problems of the European urban environment later became an important part of the documents “Europe-2000” and “Europe-2000 +”. In the late 1990s, it was emphasized that since urban issues have not two, as in land use, but three dimensions, the term “spatial planning” should be used instead of the term “territory planning”, which was previously widely used in many European countries.⁴⁶ In 2000, the principles of Europe sustainable spatial development were formulated,⁴⁷ which later became the foundation of urban spatial policy. The goals of sustainable development to 2030, which Ukraine has joined, also speak of the fundamental importance of transforming the city into a space that is comfortable for people to live in.

Similar problems in different cities around the world have led to the search for ways to solve them, which can later be transferred to another context. The concept of “best practice” has become widespread, especially in European urban policy, as the discovery of successful experience of urban governance and the possibility of taking it into account in other countries contributes to the accumulation of

⁴⁶ Salez P. How Europe comes to spatial planning: from the birth of regional policy to the Green Paper on territorial cohesion. The emergence of the Community as a player over more than 20 years // Cooperation for territorial cohesion of Europe. URL: http://81.47.175.201/urban_rural/documents/docs_others/livre_geographie_2009.pdf

⁴⁷ Guiding Principles for Sustainable Spatial Development of the European Continent (2000). URL: <https://rm.coe.int/1680700173>

knowledge, determines progress in public life in urban planning and management.⁴⁸

The exchange of experiences at the supranational level facilitates the development of coherent solutions and databases aimed at harmonizing urban planning, using an approach that entails the transfer of expertise, concepts, ideas, and practices developed in one environment to achieve the similar desired outcome in another place (city).⁴⁹

This process is not easy. It is unlikely that an accurate replication of a model that works well in one context will ensure its success in another. Therefore, city leaders and professionals need to develop their own context-oriented solutions for the use of certain ideas. For implementation to be successful, any decisions must be area-specific, political and planning situations, cultural advantages, and features. In general, urban space becomes a legacy only when it is a subject of practicing its preservation and management.⁵⁰

The experience of studying the best “urban” practices in the world shows that the models and concepts that have been adopted and implemented are based on an integrated approach to managing and planning the development of the city as a whole, not just its individual districts or areas. A universal indicator of best practices is the achievement of the goal (planned result) with minimal expenditure of resources, and the result may be different—economic, social, environmental, and socio-cultural. The example of three European cities (Stockholm, Berlin, Barcelona) and one Asian city (Dubai), which differ in geographical location and natural conditions, development of urban infrastructure, and urban economy, simultaneously equally

⁴⁸ Stead D. (2012). Best practices and policy transfer in spatial planning. *Planning Practice and Research*. Vol. 27, No. 1. 103–116.

⁴⁹ Beza B. (2016). The role of deliberative planning in translating best practice into good practice: from placelessness to placemaking. *Planning Theory & Practice*. Vol. 17, No. 2. 244–263.

⁵⁰ Smith L. (2006). *Uses of Heritage*. London; New York: Routledge. 351 p.

successfully implement the approved strategies which determine their development in the near future.⁵¹

For example, in the Swedish capital, Stockholm, its strategic vision identifies four priorities (Stockholm Holding Together, ClimateSmart Stockholm, Economically Sustainable Stockholm, Democratic and Sustainable Stockholm), which are integrated into the City Plan and Goals: a growing city, a cohesive city, quality public spaces, a climate-friendly and sustainable city. The plan takes into account the prospect of population growth to 3.4 million people by 2050, global (Sustainable Development Goals 2030) and national priorities and challenges, based on a number of other documents, including the Environmental Program (2017–2019), Climate Strategy, with the initiative Stockholm without Fossil Fuel 2040, Urban Mobility Strategy, Green Stockholm Guide, Water Quality Action Plan, and other sectoral documents. Stockholm is a city with one of the most balanced transport systems, with a multimodal and developed public transport system and bicycle routes, and has accessible and well-equipped public spaces, which take into account the interests of various social groups which facilitates the longevity of the local population and improving its quality.

In turn, Germany, which is a leader in implementing the principles of sustainable development and environmental initiatives, has a developed system of spatial and sectoral planning and has many examples of successful urbanization practices. In particular, the vision of the concept of Berlin's urban development to the year 2030 is to ensure a high quality of life for Berliners by creating a smart, strong, creative, green, mobile, and socially responsible environment. The authors of this document deal with important facts regarding the quantification of the status quo and future priorities. For example, in the case of green areas, it is not about the abstract availability of these areas within the city, but about their pedestrian accessibility for more

⁵¹ Lisovsky, S. A., Maruniak, Eu. O., Gukalova, I. V., Mozgovyi, A. A., & Pokliatzkyi, S. A. (2019). Inclusiveness and environmental priorities of urban development as components of quality of life. *Ukrainian geographical journal*, 2, 13–22. DOI: <https://doi.org/10.15407/ugz2019.02.013>

than two million residents, the number of trees per km², and the dynamics of plantation growth.

As a result, the markers of the city's branding are quite pronounced: both tourist and environmentally-oriented.

Known as a tourist destination and the leader of many city rankings, Barcelona has relatively recently undergone a radical transformation and was able to shape the image of the city in the 21st century. Today, in addition to the obvious architectural advantages, and well-planned coastal zone, the central part of the city, which has successfully survived the processes of gentrification, developed transport system, and comfort of public spaces, this city is one of the most successful in terms of the digital transition. Relevant measures are implemented within the framework of 22 Smart City Strategy programs, including telecommunication networks, city platforms, data startups, smart lighting, energy efficiency, water supply, waste management, renaturation, mobility, governance, innovation, etc. In 2010, the Strategic Plan (vision) of the city development to the year 2020 was adopted and the new plan to the year 2030 has already been enacted. Challenges and levers of response to them in urban policy are presented in **Table 1.4.1**. The example of Barcelona may be one of the most interesting for Ukrainian cities, which demonstrates the ways of rapid revival with somewhat limited financial resources. Unfortunately, some of the opportunities were partially lost by our cities in the run-up to Euro 2012.

The livelihood of the Middle East city of Dubai, built in the middle of the desert, can be a demonstration of the response to the significant challenge posed by natural conditions. All five decades of the city's history have been accompanied by large-scale environmental changes, generating innovations and searching for investors to implement ambitious projects. This makes Dubai very different from European cities because the "socio-environmental price" of realizing these ambitions was very high. Dubai quickly faced the conflict between a compact building zone and the need to create new areas and entrances designed for cars. The city became more convenient for investors, and

businesses, but unsuitable for its inhabitants: there were not enough places for pedestrians (**Table 1.4.1.**), and there was a critical lack of green areas and public spaces.

Table 1.4.1. Barcelona Strategic Development Plans years 2020 and 2030: challenges and reaction

Strategic plan 2020, challenges	Strategic plan 2020, reaction	Strategic plan 2030, challenges
<ol style="list-style-type: none"> 1. Sustainability and climate change. 2. Positioning the metropolis in the new global framework. 3. Becoming a global leader in certain driving sectors of knowledge. 4. Moving beyond “bio” companies. 5. Becoming one of the most attractive regions for innovative talents. 6. Formation of an interesting and socially balanced society. 	<ol style="list-style-type: none"> 1. Powerful education system. 2. Fast, reliable and business-friendly administration. 3. Governance that offers innovative criteria for managing strategic projects and strengthens public-private accountability in leadership. 4. Values for the future that complement and strengthen the basis of modern and traditional values that give the city and its residents a new character. 5. Knowledge of languages, which facilitates internationalization, allows you to attract staff and integrate into global markets. International Airport and Barcelona brand. 	<ul style="list-style-type: none"> • Combating growing inequalities in access to housing and the employment market; • Combating the effects of climate change, the accumulation of digitalisation effects, the integration of migrants and refugees; • Development of effective metropolitan policy, from spatial planning to socio-economic development, environmental management, assistance in the fields of research, education, culture; • Using governance tools to strengthen the democracy of public-private cooperation in all dimensions.

Eventually, this fostered the development of modern unmanned public transport, and the emergence of public spaces, which, in hot

climates meant huge air-conditioned shopping malls, but also open green parks and even a ski resort, the world's tallest buildings, and more. The lack of inclusiveness has encouraged the evolution of planning policy from the idea of the area increase by washing up sand and building famous artificial islands to the formation of cluster areas with a set of functions inherent in the modern city, as well as significant digitalization of economy and services.

Among the concepts of reorganizing the urban environment and improving its accessibility in many countries, there is the so-called concept of "Complete Streets," which is based on the provision that the design of any street or square is not considered complete until all conditions are met for all kinds of mobility. We are talking about the organization of urban space, which provides convenience for people of all ages and all levels of mobility, including those who travel on foot, by bicycle, by public transport, or by car. In such a space there is a spacious pedestrian zone, recreation areas, small architectural forms, green areas, and a bike path separated from the roadway. The principles of proper street design were first adopted in the 1970s in the United States, when American cities felt that they were designed for traffic, but completely devoid of other constructive functions. The daily competition of people with cars for space and the growing risk of road accidents has forced municipalities to think about creating a safe and fair public space by transforming existing functions. In 2019, the "Complete Streets" as the principle of urban design was officially approved by 1,477 American jurisdictions,⁵² this approach was adopted by many municipalities in Canada and European countries. Based on the analysis of the experience of designing bicycle, pedestrian, and other infrastructure in many western cities, the following principles of space organization have been disclosed: continuity, safety, ecology, mobility, and accessibility. All these principles make it possible to overcome landscape and urban obstacles both vertical and horizontal,

⁵² Gregg K., & Hess P. (2018). Complete streets at the municipal level: A review of American Municipal Complete Street Policy. *International Journal of Sustainable Transportation*. Vol. 12. Issue 6. 407–418.

using the shortest distances and the most attractive places, with emphasis not only on the comfort and convenience of local residents' mobility but also on the needs of the tourist plan. This practice was the basis for the construction of a pedestrian and bicycle bridge over Volodymyrsky Descent in Kyiv, which opened in 2019. In contrast, another threat of accidents is growing in large cities—now it is with the participation of micro mobiles.

However, activities aimed at reducing pollution and traffic along with combating climate change by reorganizing streets into places for people, not just cars, outweigh all other threats, including the new challenges posed by infectious diseases pandemics (including the COVID-19 pandemic).

The overcrowded nature of city life and the existence of problems harming the health of residents force urban planners and scientists to pay attention to the interconnectedness of the urban space organization along with the physical and psychological state of the city residents.⁵³ In Europe, this was considered several decades ago. In January 2019, the European Healthy Cities Network of WHO entered Phase VII (2019–2024), bringing together more than 100 cities from 30 accredited national networks to promote the experience of change that supports the health and well-being of the people who use it. Ukraine is still considering the possibility of urban communities of accredited joining this network. This is even more so as pandemics continue to spread around the world, suggesting that public health is changing and that modern industrialized nations are creating new “pathogens” of disease that can lead to immunity loss and exacerbate chronic morbidity. The pandemic has posed a powerful challenge to the health systems in different countries, and thus a challenge to urban planning and governance, as they must now go beyond the traditional decision-making algorithm in various spheres of public life.

Many of the provisions and ideas underlying modern projects for the development of Ukrainian cities have direct analogs in foreign design

⁵³ Duhl, L. (2005). Healthy Cities and the Built Environment. *Built Environment (1978-), 31(4)*, 356–361.

practice. The problem is the fundamental differences between Western and domestic concepts. The former usually forms a holistic image of the future (sustainable) vision of the city, while in the latter, the national strategic documents, rather fragments of their partial improvement devoid of directions of deep systemic transformation in accordance with the best world experience are laid out. The existing shortcomings of generally good initiatives in the field of urban planning can be explained by the lack of an effective mechanism for interaction between government, people, and business in their development: most initiatives in the post-Soviet era are generated “from above,” while foreign initiatives were predominantly formed “from below” with the participation of the specialist community and all stakeholders. At the same time, there is active lobbying for legislation aimed at creating a comfortable urban environment, and only then do the initiatives become investment-attractive, which allows the spreading widely those relevant practices. At the same time, such gaps are being actively addressed through international assistance projects, in particular those dedicated to the integrated development of Ukraine’s cities.⁵⁴

⁵⁴ Integrated Urban Development of cities in Ukraine. GIZ. URL: <https://www.giz.de/en/worldwide/82827.html>

1.5 Methods for assessing the balance of urban development in Ukraine

The issue of ensuring sustainable (balanced) development is extremely complex, has an interdisciplinary nature, and requires a combination of efforts from representatives of virtually all social, natural, and technical sciences. Accordingly, the study of sustainability of urban development and assessing the level of this sustainability requires taking into consideration a sufficient number of factors selected from their vast multitude and assessing their parameters using relevant indicators and their qualified interpretation.

This emphasizes the importance of developing methods of geographical (in particular—socio-geographical) research as well as assessment of urban development sustainability. This is due to the unique integration potential of geography and the vast area of the subject of its research on territorial aspects of Society and Nature development and their interaction, as well as such defining principles of geographical research as complexity, specificity, and territoriality.

Therefore, the methodology for assessing the sustainability of urban development should ensure a sufficient degree of consideration of various aspects and factors that affect its level.

Based on the provisions of the basic Paradigm of social development for the 21st century, which is the Concept of Sustainable (balanced) development, the main aspects regarding which the relationships and interactions are considered, are economic, social, and environmental ones. For cities, as poles of the population concentration, where the flows of population mechanical movement are focused, there are processes of ethnic, ethnoreligious, and mental diversification of inhabitants, the culturological aspects of development, in their broad dimension, are also extremely important.

Taking into account the experience and world practice in assessing the sustainability of urban development, in particular the UN-Habitat regulations, the approaches to the development of indicators for

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achieving the 2030 Goals and ratings of sustainability and quality of life in cities, among the main principles to be observed are multiplexity, systematicity, inclusiveness, participation, complementarity, continuity, longevity, succession.

This, among other things, requires a combination of different approaches to the assessment of urban development sustainability. In particular, it is a combination of assessing sustainability using selected indicators and determining their values, taking into account public opinion, estimates by the residents of particular cities, their vision of sustainability, and some problems of providing this sustainability based on a participatory approach.

This requires the appropriate research—questionnaires, and expert surveys, which should identify public opinion, public perception of urban development, and their subsequent consideration when developing state planning documents for individual cities in Ukraine and the adaptation strategies which account for urbanization processes in the country as a whole.

It is important to take into account the needs for the provision of urban inclusiveness, which should be understood as the general needs of the population in the accessibility to transport, trade, medical and educational infrastructure, public spaces, green areas, and natural or artificial water bodies, etc., as well as the needs of residents considering the distribution by gender and age groups, layers, ethnic and professional groups of citizens, etc.

The initial stage of conducting a specific assessment of cities' sustainable development in Ukraine and its regions is to determine the framework conditions which determine the current state and future opportunities for sustainable urban development. In particular, its important component is conducting a SWOT analysis, and researching the challenges and problems of urban development.

Given the significant size of Ukraine, and the variety of historical, economic, demographic, natural, and other factors that determine the development specifics of regions in Ukraine and, accordingly, urban

areas, such studies should be conducted based on the example of cities in different regions.

In addition, taking into account the different importance and ratios of individual and aggregated economic, social and environmental factors, depending on the population size of cities, it is advisable to assess their balance separately for certain categories of cities: large, medium, and small. These and other aspects that should be taken into account when developing a methodology for assessing the sustainability of cities in Ukraine are set out in **Table 1.5.1**, which, in particular, outlines such methodology components as:

- General algorithm of scientific elaboration of the problems of balanced urban development;
- Level of selection and processing of indicators;
- Selection criteria;
- Political and legal instruments;
- Participants in the selection and use;
- Principles of choice;
- Priority;
- Scope of balance assessment;
- The degree of aggregation of indicators.

Taking into consideration the identified approaches, a set of indicators for sustainability assessment of cities in Ukraine was developed, which is included in **Table 1.5.2**. As expected, a significant factor that ultimately influenced the list of selected indicators was the opportunities associated with the available state statistics data in Ukraine. Unfortunately, the current statistical base does not allow to analyze a significant number of sustainable urban development aspects in Ukraine. The possibility of recommendations development for its expansion can be considered as one of the work results.

Table 1.5.1. Scheme-matrix of socio-geographical approaches to the development of methods for studying sustainable urban development and selection of indicators for its evaluation

The general algorithm of scientific elaboration of urban development problems	Study of society and nature, laws and patterns of their interaction
	Study of the factors that determine the opportunities for the transition to balanced development
	Defining the place and role of sustainable urban development in the sustainable development of countries and regions
	Determining the main components, factors, and conditions for sustainable development of cities
	Development of indicators of sustainable development and indicators of sustainable development of cities in the context of ensuring sustainable spatial development
	Development of the Concept and Strategy and the National Action Plan for the transition to sustainable development
	Creating a mechanism for implementing the policy of transition to balanced development
	Implementation of sustainable urban development projects in the system of sustainable spatial development. Monitoring the implementation of Sustainable Development Strategies, plans, and programs. Adjustment of existing strategies, plans, and programs
Level of selection processing of indicators	Global
	International
	National (including for large, medium and small cities)
	Regional
Selection criteria	Local (at the level of an individual city or town)
	Possibility of use at the global, regional, national and local levels
	Representativeness of the indicators used
	Minimization of the number of indicators
	Absence of duplication by one indicator of others, prevention of repeated calculations of separate indicators. Clarity and unambiguous interpretation for decision makers
	Quantitative expression
Inclusion in the system of national statistics. Possibility to measure in the time dynamics	Representativeness for international comparisons

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Political and legal instruments	Consideration of national and regional conditions and features
	Consideration of the unique nature of individual cities' needs
	Possibility of verification and monitoring
	International agreements and conventions on sustainable (sustainable) development (UN Summit on Sustainable Development, 2030 goals and others) documents of international organizations regarding sustainable development
	International legislation regulating certain aspects of society, which are included in the field of sustainable development
	Bilateral and multilateral international agreements
	National Concept. Strategy and National Action Plan for Sustainable Development
	National legislation on certain aspects of sustainable spatial
	National legislation on sustainable development of titles and towns
Participants in the selection and use	Civil society institutions
	International experts
	Scientists from the national scientific schools
	Representatives of education and enlightenment
	Representatives of civil society. NGOs
	Representatives of government agencies
	Representatives of the media
	Business representatives and investors
Principles of selection	Residents of cities and some areas of the city
	Complexity
	Systematic nature
	Inclusiveness
	Participation
	Complementarity
	Continuity
Priority	Longevity
	Succession
	Recognition of the priority of global problems of human development over those next in rank
	Taking into account the needs of nation states
Sphere of the balance assessment	Taking into account the needs of all strata of society (urban, rural population, different sexes, ages, ethnicities, religions, professional groups, etc.
	Ability to change priorities depending on the achievement of sustainable
	Economic
	Social
The degree of the indicators aggregation	Ecological
	Cultural (including ethnic, linguistic religious)
	Indicators of 1 level (initial)
	Indicators of II level (derivatives)
	Indicators of III level (blocks of indicators)
	Integral indicators

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To expand the number of indicators, which affect certain aspects of urban development sustainability, some additional calculations and measurements were performed and also GIS methods were used, in particular DDZ data was processed to calculate the availability of green areas and water bodies.

Table 1.5.2. Indicators for assessment of urban development sustainability in Ukraine

#	Indicator	Unit of measure
<i>Indicators of ecological block</i>		
1	The share of green space	% of city area
2	The share of surface water area	% of city area
3	Budget expenditures on environmental protection	UAH/1 person
4	Budget expenditures for landscaping	UAH /1 person
5	Emissions of harmful substances into the atmosphere by stationary sources	kg/person
6	Waste generation	kg/person
7	Accumulation of waste	kg/person
8	Expenditures on environmental protection	UAH/person
<i>Indicators of economic block</i>		
9	City budget (expenses)	UAH/person, 2019
10	Corporate tax on commercial real estate	UAH/person, 2019
11	Land tax on legal entities	UAH/person, 2019
12	Tourist tax	UAH/person, 2019
13	Average salary of full-time employees	UAH/person, 2019
14	Average price of m ² of housing	1,000 UAH (data https://dom.ria.com/ for 13–14.03.2021)

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Indicators of social block		
15	Population dynamics	In 10 yrs. (2020 (2019) year in % to 2010 (2010– 100%))
16	Total birth rate	In 3 yrs., ‰ — persons per 1000 of population, 2019
17	Overall mortality rate	In 3 yrs., ‰ — persons per 1000 of population, 2019
#	Indicator	Unit of measure
18	Proportion of children (to calculate the demographic burden)	0–14 yrs., %, 2019
19	Proportion of working age population (To calculate the demographic burden)	15—64 yrs. %, 2019
20	Proportion of the retirement age population (To calculate the demographic burden)	65 yrs. and above, %, 2019
21	Healthcare budget expenditures	UAH/person, 2019
22	Budget expenditures on education	UAH/person, 2019
23	Budget expenditures on housing and communal services	UAH/person, 2019
24	Budget expenditures on social security	UAH/person, 2019
25	Budget expenditures on spiritual and physical development	UAH/person, 2019
Indicators of accessibility block		
26	Number of Ukrposhta branches	Branches per 10,000 persons
27	Distance to the passenger railway station	km
28	Distance to highways of international importance	On highway / under 20 km / over 20 km
29	Distance to the international airport	under 30 km / 31–100 km / over 100 km

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30	Coefficient of multimodality of transport	In points for each vehicle: bus, trolleybus, tram, metro, cable car, cable car routes, city water transport
31	Availability of green areas	% of the territory within 0.5 km radius to the object, with area under 0.5 ha, %
32	Availability of water bodies	% of the territory within 0.5 km radius to the water body, with area under 0.5 ha, or water stream, with developed riverbank or lakeshore lane, %

The information was processed in terms of the large, medium and small cities of regional importance in the regions of Ukraine. The indicators were grouped into four blocks: environmental, economic, social, and a block of indicators which reflect certain aspects of integrated spatial development of cities. Each of the indicators, depending on the specifics, was considered as a stimulant or destimulant. Accordingly, the number of points for individual indicators, for individual blocks of indicators and the total number of points were calculated.

Another important aspect of the study was to conduct research to identify the specifics of public perception of the Ukrainian cities balanced development issues in the context of their awareness of the concept itself, place and importance of its main components; substantiation of the questionnaire as an affordable way to obtain important analytical material on this issue. To do this, a questionnaire was developed, which used three types of questions: closed (with options for ready answers), open (the respondent had to provide his own answer) and questions designed for scaling on a five-point scale (from confident “yes” to confident “No”). All of them were grouped into several blocks and, after

a pilot (trial) test and rejection of unnecessary or unclear wording, the questions were distributed as shown in **Table 1.5.3** (31 questions in total). In order to get answers to the questions presented in the questionnaire through higher education institutions, public and scientific organizations in more than forty Ukrainian cities in late 2018—early 2019, printed copies of the questionnaire were distributed, and the link to its Google form was posted on the Institute of Geography’s website. Motivational posts and links were also posted on Facebook and Instagram, sent by e-mail and using messengers.

The application of combination of the above mentioned approaches in assessing the sustainability of urban development in Ukraine has made it possible to identify current problems in this area and take them into account in the relevant recommendations.

In this way, the perceptual component and the expectations of urban residents regarding the urban environment can be worked out as well as the gaps in public awareness can be identified. This approach also allows to solve the issue of inadequate separate data that characterizes urban space. At the same time, there is a risk of insufficient or overestimation of certain parameters based on individual characteristics of respondents (short stay in the city, low needs for consumption of certain services or, conversely, long experience of living in cities that are leaders in quality of life, etc.).

Additional parameters of urban development can be analyzed using so-called balance markers. In continuation of the K. Lynch’s reasoning⁵⁵ on the elements of a cognitive map of the urban environment (landmarks) construction, we can address the elements of urban landscape that reflect the key dimensions of sustainable urban development (greening, inclusiveness, innovation). It is obvious that these are mainly qualitative assessments, which, however, in detailed research, can be expressed in points, used for expert surveys. In general, the following groups of markers can be distinguished:

⁵⁵ Lynch, Kevin. (1981). *A theory of good city form*. Cambridge, MA: MIT Press.

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- “Green” markers (green areas, relevant infrastructure and environmental advertising, places for separate garbage collection, etc.);
- Markers of public spaces (design, functionality, branding, local identity);
- Markers of inclusiveness (providing barrier-free space in compliance, accessibility of sites and adjacent areas);
- Sacred spaces (safe space organized for religious ceremonies);
- Sustainable transport infrastructure (organized on the basis of smart technology work of public transport, parking lots, bike lanes and bike paths, distribution of electric vehicles);
- Aesthetics of the urban landscape, preservation of the “old city,” limiting the height of buildings within certain neighborhoods, harmonization of buildings in accordance with the natural features of the territory, ensuring diversity and uniqueness of the city and its individual areas, limited number of objects that create additional visual and informational stress).

Examples of such markers are shown in **Fig. 1.5.1**.

Given the actualization of the concept of inclusiveness, a detailed analysis of the urban development sustainability may include relevant issues aimed at obtaining expert opinion and identifying the peculiarities of public perception. The very concept of inclusiveness and its antonym—exclusivity (disintegration), are quite broad. According to some authors, their appearance in political discourse is largely due to the Istanbul Declaration,⁵⁶ where the “evident response to socio-spatial inequality of inclusiveness in the process of neoliberal urban development” and recognition of the prospect of deterioration due to lack of action takes place.⁵⁷ Today we can talk about inclusiveness as a multidimensional phenomenon that affects everyone, with no exception

⁵⁶ United Nations Conference on Human Settlements (Habitat II). 1996. URL: <https://www.un.org/ruleoflaw/wp-content/uploads/2015/10/istanbul-declaration.pdf>

⁵⁷ Bunnell T. (2019) Inclusiveness in Urban Theory and Urban-Centred International Development Policy. *Journal of Regional and City Planning*. Vol. 30, No. 2, 89–101, August 2019. <https://doi.org/10.5614/jpwk.2019.30.2.1>

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of the spheres of city dwellers and communities livelihood. The World Bank identifies categories of spatial, social, economic and urban inclusiveness which are interdependent and which affect the quality of life.



Organization of green areas, Kyiv



Sale of organic produce, Kyiv



Organization of public areas, town Irpin



Organization of public spaces and branding, Kyiv



Sacral spaces, Kyiv



Transportation: organization of a bicycle path, Kyiv

Figure 1.5.1. Markers of the city sustainability (photo Eu. Maruniak)

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When developing questionnaires, it is advisable to focus on the development of the following thematic blocks: “street infrastructure and public transport”, “urban space” and “social infrastructure.” Thus, the first block of questions may include an assessment of the availability of certain elements of street infrastructure (road markings, pedestrian crossings, traffic lights, tactile and visual elements of accessibility, etc.). The second block represents pedestrian accessibility, landscaping, safety and openness of various green areas, children and sport playgrounds, as well as sacred buildings and other spaces. The third block of issues deals with the availability of diverse social infrastructure and pedestrian accessibility to it. Answers are evaluated in points (three or five-point scale). At the same time, it is advisable to involve people from different age groups, different income levels and education in the survey.

At the same time, it should be noted that the local features of city development inclusiveness largely depend on the framework conditions of their integrated development, as integrated development involves simultaneous and fair consideration of needs and interests relevant to urban development.

2 SUSTAINABILITY AND MAIN PROBLEMS OF URBAN DEVELOPMENT IN UKRAINE

2.1 Ukrainian cities in a global dimension

When considering the peculiarities of urban development policy, what should be highlighted, first of all, it is the clear hierarchization of the global community, in which, despite the weakening role of the nation states and strengthening the importance of transnational corporations and banks, the lining of the center-peripheral model is still visible. The pronounced polarization of the landscape within the borders of countries themselves and the formation of the network of cities with global importance, followed by further dividing into categories “alpha,” “beta” and “gamma”⁵⁸ has become its main feature in the era of globalization. According to different views, global cities are the “territories where a number of globalization processes acquire specific localized forms”⁵⁹, “nodes of the world network” and “a place where culture and economy overlap.”⁶⁰ Cities, obviously, are also the poles of concentration of innovation and knowledge and multiplication of technologies and standards. Accordingly, without occupying leading positions in the hierarchy, without developing, and most importantly, without the implementation of innovative strategies and ignoring the issue of urban development, no country will be able to ensure the growth in the well-being of its citizens in any perspective. Of course, apart from the alternative of using natural resources.

⁵⁸ Taylor, P. J. (2003). *World city network: A global urban analysis*. New York: Routledge Taylor and Francis Group. 253 p.

⁵⁹ Sassen, S. (2005). *The Global City: introducing a Concept*. URL: <http://www.saskiasassen.com/pdfs/publications/the-global-city-brown.pdf>

⁶⁰ Cabigon, J. V. *Cities in Globalization*. URL: http://www.dlsu.edu.ph/research/journals/apssr/pdf/200612/science_3.pdf

Looking back at the place and role of Ukrainian cities at the global and macro-regional level, one should note the unclear representation of most regional centers and even the capital. At the same time, there is a clear tendency to strengthen the international functions of those cities, and their deeper integration, first of all in the European, and later in the global space.

Thus, starting in 2020, Kyiv appeared at 89th place out of 156 cities in A.T. Kearney's ranking of global cities, (in 2021—91st place out of 146 cities).⁶¹ At the same time, it is separated by about 20 points from the nearest European cities on the list. A notable fact is that Kyiv is listed in both "Alpha-Beta-Gamma" classifications. In the first (P. Hall),⁶² which roughly refers to 2005–2006, Kyiv is in the "delta-city" group, with a moderately pronounced trend. In the second (P. Taylor), as of 2004, the city belonged in the group of "cities with a sufficient number of services," gradually improving its indicators, first to "Beta–" (2008), then to "Beta" (2010) and "Beta+" (2012, 2016), and worsening the indicator in 2020 to "Beta."⁶³ In 2014, nine Ukrainian cities were included in the rating of innovative cities, which gradually increased from 445 cities to 500 (as of 2021). But only Kyiv, among them, demonstrates certain growth and has the status of a "node." The changes that took place during the so-called "covid" years are shown in **Table 2.1.1**.

An interesting fact is that Donetsk, although occupied, nevertheless occupies a higher position than Zaporizhzhia. The situation with Simferopol and Sevastopol, located in the annexed Crimea, is somewhat similar. An obvious explanation is the calculation methodology, which, in addition to cultural values and social (human) infrastructure for

⁶¹ Global cities: divergent prospects and new imperatives in the Global recovery. URL: <https://www. Kearney.com/global-cities/2021>

⁶² Sir Peter Hall. (2005). The World's Urban System: A European Perspective. Global Urban Development Volume 1, Issue 1 (May 2005). URL: <http://www.globalurban.org/Issue1PIMag05/Hall%20PDF.pdf>

⁶³ The world According to GaWC 2020. URL: <https://www.lboro.ac.uk/microsites/geography/gawc/world2020t.html>

implementation of innovations, analyzes “network markets,” and within this category—the aspects of militarization.

Table 2.1.1. The place of the largest Ukrainian cities in the rating of innovative cities [Based on⁶⁴]

City	Rating 2019	Rating 2021
Kyiv	382	359
Odesa	447	462
Kharkiv	449	474
Lviv	441	480
Sevastopil	471	486
Dnipro	461	488
Simferopol	475	493
Donetsk	469	494
Zaporizhzhia	472	496

Ukrainian cities did not make it into the rating compiled by UN-Habitat of the Top 200 cities in terms of economic competitiveness and balanced competitiveness, however, they were classified in the report (Global Urban Competitiveness Report, 2019–2020)⁶⁵. Kyiv was assigned to category “C”—the international gateway city, Kharkiv and Lviv—to category “E+” and “E”—the regional gateway city.

Let’s look in more detail at the main indicators of the so-called “globality” of cities such as income, population, investment of global

⁶⁴ 2thinknow Innovation Cities™ Index. URL: <https://innovation-cities.com/indexes>

⁶⁵ The Global Urban Competitiveness Report. UN-HABITAT, National Academy of Economic Strategy, CASS. URL: https://unhabitat.org/sites/default/files/2020/10/global_urban_competitiveness_report_2019–2020_the_world_300_years_of_transformation_into_city.pdf

capital, quality of university education, information and transport components.

From the point of view of income, Kyiv is the only Ukrainian place that is visible at the global level in terms of GDP, in particular, in the ranking of the richest cities by PricewaterhouseCoopers. In 2012, Kyiv ranked 67th,⁶⁶ and in 2018—73rd⁶⁷ out of 72 and 77 cities respectively. The closest European cities in the ranking are Sofia, Bucharest and Budapest. In the forecast of the cities GDP growth by the year 2030⁶⁸, published in 2015, in addition to Kyiv (expected growth rate—4.7%), other large cities of Ukraine are also considered, in particular, Dnipro (expected growth rate—3.83%), Donetsk (3.0%), Zaporizhzhia (3.66%), Lviv (3.45%), Odesa (4.47%), Kharkiv (3.99%). Therefore, in the coming decade, the prospects of approaching most European cities in terms of income are not realistic.

The population is one of the important factors that determine a city's position on the global chessboard. In this aspect, Kyiv and some other cities have good demographic prospects, although most Ukrainian cities show a population decline. As of 2021, Kyiv, Kharkiv, Donetsk, Dnipro, and Odesa are included in the list of major agglomerations of the world, with a population of 3,475,000 people (154th place), 1,630,000 people (348th place), 1,440,000 people (401st place), 1,380,000 people (420th place), 1,110,000 people (540th place), respectively ⁶⁹. For comparison, the population of the largest agglomerations, Guangzhou and Tokyo, is more than 40 million people.

One of the main indicators of the city's high international status is the presence of headquarters (primary) and branches (secondary) of transnational corporations (TNCs). Particularly the TNCs included in the

⁶⁶ The most expensive and richest cities in the world. City Mayors. URL: http://www.citymayors.com/economics/richest_cities.html

⁶⁷ The richest cities. City Mayors. URL: <http://www.citymayors.com/economics/richest-cities-world.html>

⁶⁸ Average annual GDP growth forecast 2012-2030. LSECities. URL: <https://urbanage.lsecities.net/data/future-cities-gdp-2012-2030>

⁶⁹ Major agglomerations of the world. City Population. URL: <http://www.citypopulation.de/en/world/agglomerations/>

list of 500 global TNCs according to Forbes stand out. Let's immediately emphasize several important provisions. The first of them is the fact that Ukrainian TNCs are still not included neither in the specified list of 500 global TNCs, nor in the list of 100 largest non-financial TNCs compiled by UNCTAD. Therefore, there is not a single headquarters in Ukraine. As for the branches of foreign TNCs, they are definitely represented in the Ukrainian market, but it is extremely difficult to talk about the exact number and scope of their activity. It is obvious that the majority is concentrated in large agglomerations and focused on the local consumer (food industry, household chemicals, sale of household appliances and cars), but not on technologies and services. At the same time, at the beginning of 2011, according to the CB Richard Ellis consulting company, Kyiv ranked 42nd in the world by the presence of offices of the largest international companies.

Offices of the largest Ukrainian companies are mostly located in Kyiv, but in terms of the scale of their activities, they are significantly inferior to global TNCs. Thus, in 2020, the combined income of the 200 largest companies amounted to UAH 3.4 trillion (at the exchange rate of the National Bank on June 1, 2020—\$123 billion) and \$88.5 billion less than the revenue of the Korean corporation Samsung⁷⁰. Studies conducted on the business functions and connections of cities⁷¹ point to Kyiv and Dnipropetrovsk (previously also Donetsk) as team business centers. Regarding the infrastructure and the environment, a slightly different picture can be seen. The city of Kyiv also dominates in terms of the number of business centers, followed by Lviv, Odesa, and Dnipropetrovsk. It is also necessary to take into account Kyiv's undisputed leadership in terms of foreign economic activity indicators and the number of people employed in the service sector.

⁷⁰ 200 largest companies of Ukraine in 2020. Bussinnes Censor. URL: <https://biz.censor.net/r3268870> [In Ukrainian].

⁷¹ Barantsev P. Global cities as a frame of the economy. Ukrainian context. URL: <https://tyzhden.ua/hlobalni-mista-iak-karkas-ekonomiky-ukrainskyj-kontekst/> [In Ukrainian].

Another indicator of the globality of the city is affordable and high-quality education, the presence of universities recognized at the global level. In the rankings of the world universities, Ukraine is represented by about a dozen institutions, which, however, allows us to go beyond the usual 5–6 regional centers (**Table 2.1.2**).

Another rating⁷² includes in the evaluation list (together in 2020–2021—19,788 units) and academic institutions, respectively: National Scientific Center *Kharkiv Physical and Technical Institute*, Kyiv National University after T. Shevchenko, as well as Institutes of the NAS of Ukraine—nuclear research, cybernetics after V. M. Hlushkov, theoretical physics after M.M. Bogolyubov, physical and technical institute of low temperatures after B. I. Verkin.

Table 2.1.2. Ukrainian Universities in the World ratings (places) (continuation)

World University Rankings ⁷⁶	QS World University Rankings 2022 ⁷⁷	Best Global Universities ⁷⁸
<ul style="list-style-type: none"> • Kyiv National University after T. Shevchenko (491) • Odesa National Academy of Food Technologies (717) • Ostroh Academy National University (718) • Southern Ukrainian National Pedagogical University after K. D. Ushinsky (731) 	<ul style="list-style-type: none"> • Kharkiv National University named after V. N. Karazin (511–520) • Kyiv National University named after T. Shevchenko (601–650) • National Technical University <i>Kharkiv Polytechnic Institute</i> (651–700) • National Technical University of Ukraine <i>Ihor Sikorsky Kyiv Polytechnic Institute</i> (701–750) 	<ul style="list-style-type: none"> • Kyiv National University named after T. Shevchenko (1167) Kharkiv National University after V. N. Karazin (164)

⁷² Global 2000 list by the center for world university rankings. URL: <https://cwur.org/2021-22.php>

Table 2.1.2. Ukrainian Universities in the World ratings (places) (continuation)

World University Rankings ⁷⁶	QS World University Rankings 2022 ⁷⁷	Best Global Universities ⁷⁸
<ul style="list-style-type: none"> • Mykhailo Ostrogradsky Kremenchug National University (769) • Poltava Polytechnic National University after Yury Kondratyuk (819) 	<ul style="list-style-type: none"> • Sumy State University (701–750) • Lviv Polytechnic University (801–1000) • Ivan Franko Lviv National University (1001–1200) • National University <i>Kyiv-Mohyla Academy</i> 	

The formation of the city image and its integration into the global space obviously follow the development of information technologies and transport networks. The use of the Internet, social networks, and mobile communication are characterized by growth trends in Ukraine as a whole and in its largest cities, among which Kyiv remains the leader. In 2019,⁷³ the number of Internet users was 1.715 million people in Kyiv and 1.116 million people in Odesa. The number of LinkedIn network users in Ukraine has increased from 2.9 to 3.7 million people⁷⁴ in a few years. Also known as the successful activity of IT companies in the Ukrainian market. At the same time, the quality of transport services, and the volume of freight and passenger traffic remain at a level lower than in most European countries, and the development of the international transport corridors system and the functioning of multimodal hubs remain issues for the future. International air traffic is carried out mainly through Kyiv, whose both

⁷³ Kyiv city, Odessa region leaders in number of Internet users in Ukraine – State Statistics Service. URL: <https://www.ukrinform.net/rubric-society/2705676-kyiv-city-odesa-regionleaders-in-number-of-internet-users-in-ukraine-state-statistics-service.html>

⁷⁴ Number of LinkedIn users in Ukraine from August 2019 to August 2022. Statista. URL: <https://www.statista.com/statistics/1261255/linkedin-users-ukraine/>

2.1 UKRAINIAN CITIES IN A GLOBAL DIMENSION

airports are not included in the world rankings in terms of attractiveness or traffic volume. In addition, air transportation in several directions is carried out in Kharkiv, Odesa, Dnipropetrovsk, and Lviv.

Summing up a brief overview of the trends of Ukrainian cities' involvement in the processes of globalization, we should point out the growing intensity of influences, changes in the urban environment, and attainment of a new role and status in the macro-regional and global dimensions by some cities. Such transformations are taking place rather slowly and primarily in Kyiv, the country's largest metropolitan region. At the same time, there is a need for increased attention to the quality of urban development policy formation, ensuring a balance between economic parameters and opportunities of urban ecosystems, and the quality of life of the urban population.

2.2 Framework development conditions of the Ukrainian cities

There are quite pronounced differences in the development of Ukrainian cities, discussed in the following subsections, considering the history of formation and modern realities of that development.

A considerable number of urban development problems are the result of the peculiarities of natural and economic systems, human capital, and ultimately—the size of settlements.

During the last decades, large cities, to a certain extent, continued to fulfill the role of regional and macro-regional growth centers, and some of them, together with the adjacent suburbs, acquired the characteristics of metropolises. Their economic growth, however, was often marked by a number of environmental problems (low quality of air, drinking water, reduction of green areas), in some cases—an overload of social and transport infrastructure facilities, and degradation of public spaces.

The total population of the top ten largest cities of Ukraine (excluding occupied Donetsk, Makiyivka, and Luhansk) decreased by almost 28,000 people between 2001 (census data) and 2021 (according to the Ministry of Finance).⁷⁵ Only in Kyiv and Vinnytsia during this 30-year period, there was population growth, mainly migration. The largest reduction was observed in Dnipropetrovsk and Zaporizhzhia (more than 80 and more than 90 thousand people, respectively). The population of Kryvyi Rih decreased by more than 50,000 people.

In most medium-sized and small cities, the trend of population decline was even more pronounced, although now it roughly corresponds to this indicator for the entire urban population. At the same time, there is significant regional differentiation. Thus, during the period 2001–2019 (since the last population census), the population of

⁷⁵ Population in cities of Ukraine. Ministry of Finance. URL: <https://index.minfin.com.ua/reference/people/town/> [In Ukrainian].

small towns increased in two regions—Kyiv and Rivne regions. In the first case, it is the influence of metropolitanization processes and growth of the satellite cities of Kyiv, one of which—Irpın, is no longer a small one, exceeding the threshold of 50 thousand people. Second—it is higher than the average in Ukraine birth rate. The population of small towns in most western regions (Volyn, Ivano-Frankivsk, Lviv, Ternopil, Zakarpattia) and Odesa region remained relatively stable (decrease within 1–3%). A more pronounced reduction (5–7%) was observed in Vinnytsia, Zhytomyr, Dnipropetrovsk, and Khmelnytskyi regions. Approximately 10–12% population reduction was in 5 regions—Mykolaiv, Poltava, Kherson, Chernivtsi, and Sumy regions. In the end, the highest rates of depopulation took place mainly in industrial regions, among which the expected leading ones are Luhansk and Donetsk regions. It should also be noted that as a result of Donbas region occupation and annexation of Crimea, Ukraine lost more than 40 small towns.⁷⁶ About 25% of small cities are mainly monofunctional cities with industrial or agro-industrial functions, which made them particularly vulnerable in the era of globalization.

The generally understood challenges and prerequisites of the Ukrainian cities' development definitely require a more detailed consideration based on the example of individual cities. Therefore, according to methodology, during the study, some key cities selected after examining the expert opinion in central, western, eastern, and southern macro-regions of the country were analyzed in three categories: large, medium, and small. The monograph presents only large cities as those that combine specific features of territorial identity and the maximum manifestation of global influence. The characteristics of each of them are given by rubric: business card, functions, and connections of the city, human capital, transport and mobility, organization of urban space, challenges, and threats of urban development.

⁷⁶ Ukrainian Small Cities in the Perspective of Sustainable Spatial Planning. URL: <https://www.routledge.com/The-Routledge-Handbook-of-Small-Towns/Banski/p/book/9780367555900#>

Lviv: a large city in Western Ukraine

Business card. Lviv is the historical center of Galicia, a well-known national and cultural center of Ukraine. The first written mention of the city is recorded in the Galician-Volyn Chronicle and dates back to 1256, which is considered the year the city was founded. The city is located 60 km east of the Ukrainian-Polish border, at an altitude of 289 m above sea level. The area of the city is 18.2 thousand hectares. The population of the city (as of December 1, 2019) is 756,000 people. The population density is 4.4 thousand people/km².

Functions and connections of the city. Lviv, first of all, is a major tourist center in Ukraine. Centuries-old history, architecture, and developed public services sphere contribute to the creation of the city's attractive image for tourists. In 2018, Lviv was the only city in Ukraine to be included in the rating of Euromonitor International and ranked 80th among the 100 most visited cities in the world. The development of the tourism industry determines the fact that the tertiary sector of the economy forms the basis of the city's economy. According to statistical data, 59% of the population is employed in the public service sector. The average number of registered full-time employees employed in the city's economy in 2019 was more than 244,402 people (**Table 2.2.1**).

Table 2.2.1. Main socio-economic development indicators, city of Lviv, 2019

Population as of 01.01.2020, people	756,000
Natural population growth/decline, people	- 2,339
The average registered number of full-time employees, people	244,402
Average monthly salary of employees, UAH	9,958
The total area of residential buildings in operation, thousand m ²	567.3

Developed infrastructure, transport network, and advantageous geographical location of Lviv all contribute to increasing the number of city visitors for both business and recreational purposes. In 2019, 2.6

million tourists visited Lviv, of which 73% defined the purpose of the trip as entertainment and recreation, 11%—as visiting family, 11%—as business, and 5%—as other. Close proximity to the border contributes to the growth of the number of foreign tourists. In 2019, 64% of the tourists were foreign visitors, and 36% were Ukrainians.

The city enjoys developed industry, mainly processing. There are food, beverages, tobacco, rubber, and plastic goods production enterprises as well as engineering and metalworking. A total of 11,992 enterprises operating in the city in 2019, among which 15—were large, 583— medium, and 11,394—were small (including 9,618—micro-enterprises). In 2019 the amount of the city's industrial products sold was UAH 46.5 billion, or 44.2% of the total regional volume.

Its close proximity to the Polish-Ukrainian border, powerful infrastructure and industry, a developed network of international transport connections, and the presence of a highly qualified labor force make the city attractive for international investments. In 2020, according to Transparency Rating by the anti-corruption public organization Transparency International Ukraine, Lviv was recognized as the most transparent of the 100 largest cities for investments in Ukraine.

The largest percentage of foreign investments in Lviv's economy in 2018 was from Poland (23%), the Netherlands (21%), and Cyprus (19%). 56% of direct foreign investments is invested in the city's industry, 10% in real estate transactions, 8% in financial and insurance activities, 8% in administrative and auxiliary service activities, etc.

In 2020, at the presentation of the Global Business Services Awards in Central and Eastern Europe (Warsaw), Lviv was nominated as the best location for business outsourcing in the category of Central and Eastern European cities. The city also received an award from the European Bank for Reconstruction and Development for sustainable development, winning the Sustainability Awards 2020 in the category "Environmental and Social Practice." Lviv ranked 6th most business-friendly and 2nd in terms of economic potential among developing cities, according to the Emerging Europe organization, and entered the

top 10 “Modern places of the future” according to the Financial Times fDi Intelligence Global rating. The IT industry is actively developing in the city, there are more than 350 IT companies, which employ more than 25,000 specialists. Among the most popular companies are *Softserve, Elks, Ciklum, Epam*.

Developed infrastructure and a network of international transport connections make the city popular for hosting international, national, and local conferences.

Lviv is a unique city in Ukraine with a unique architectural structure, history and culture, and is a member of many international organizations, including *UNESCO Creative Cities Network, EURO CITIES, League of*

Historic Cities, Energycities, Organization of World Heritage Cities, 350.org.

Centuries-old history, special architecture, and many historical and sculptural monuments contribute to the strong rooting of some metaphorical names of Lviv: *Lion City, Royal City, Pearl in the Crown of Europe, Little Paris, Museum City, Ukrainian Piedmont, Little Vienna, New tourist mecca in Eastern Europe, Cultural capital of Ukraine, Capital of Galicia*, etc.

Human capital. The population of the city (as of 01.01.2020) was 756,000 people with 46.5% male and 53.5% female. Children under 14—112,200, 65-year-old and older—116,500 people. There is natural depopulation observed in the city, and the population is maintained thanks to the migration growth.

Lviv is a powerful scientific and educational center. As of the 2019/2020 academic year, 148 general secondary education institutions were operating in the city, including 12 gymnasiums, 38 lyceums, 8 educational complexes, 7 special schools, and rehabilitation centers.

32 institutions of professional (vocational and technical) education and 28 higher educational institutions, of which 11 had national status, providing educational services in the city. In total, 114,000 students studied there. 11 scientific institutions of the Ukraine National

Academy of Sciences and 23 specialized scientific institutions function in the city.

Transportation and mobility. The favorable geographical location of Lviv determines the existence of an extensive transport network. Roads of international importance run through Lviv such as *Kyiv – Chop, Lviv – Rava-Ruska, Lviv – Krakovets, Lviv – Shegyny*, some national roads — *Lviv – Ternopil, Lviv – Ivano-Frankivsk – Mukachevo, Lviv – Sambir – Uzhhorod, Lviv – Lutsk*, and European routes — *Kale – Ridder, Warsaw – Lviv, Mukachevo – Lviv*.

The Danylo Halytsky Lviv International Airport, located within city limits and 7 km from the center operates in Lviv. As of 2020, the airport served 51 destinations and services were provided by 21 airlines.

In 2019 passenger traffic amounted to 2.2 million people.

The railway transport network is also developed. Lviv railway is the oldest in Ukraine. The first train arrived in Lviv in 1861. Today, Lviv is a powerful railway hub of international importance with international trains running through Lviv to Hungary (Budapest), Poland (Przemyśl, Wrocław), and Belarus (Mohyliv).

A developed transport network system is functioning in the city. The city is served by buses, trams, trolleybuses, and cars. In 2019, 89.8 million passengers were transported by road transport, and 99.8 million by electric transport, the bicycle infrastructure is being actively developed.

Organization of urban space. The organization of the urban public space in Lviv is considered by the local authorities as one of the city development priority directions. Over 50 public spaces have been built in the city in recent years. It is done while taking into account the needs of pedestrian tourists, inclusiveness, and users of bicycle transport.

In Lviv, there are 4 national importance objects of the nature reserve fund with a total area of 97.2 hectares (3 botanical gardens— National Forestry University of Ukraine, I. Franko Lviv National University, D. Halytsky Lviv National Medical University, and Stryy Park), more than 20 parks and there are more than 30 natural monuments. The total area of green spaces in Lviv is 33,286 hectares, with 4,419 hectares within city limits (26% of the city area).

In terms of the number of architectural monuments, Lviv ranks first among other cities in Ukraine. Among the most popular architectural monuments in the city, the following should be noted: Church of Saints Olga and Elizabeth, Arch cathedral of Saint George, Rynok Square, Lychakiv Cemetery, Royal Arsenal, Jewish Quarter, Dominican Cathedral, Opera House, Potocki Palace, Bernardine Church, Armenian Church, City arsenal, etc. The historical center of Lviv, built in the Middle Ages, was included in the UNESCO World Heritage List in 1998. The Lviv Town Hall is an architectural monument of national importance, classified as a UNESCO World Heritage Site.

Every year, festivals and holidays are held in the city, which conveys the colorful atmosphere of Lviv and contributes to the development of tourism: *For coffee to Lviv, National Chocolate Day, Cheese and Wine Day, Batiar's Day in Lviv, city beer festival, Ethnovir, city Pampukh holiday, etc.*

Lviv is a unique city with original culture. There are 8 professional theaters, 6 studio theaters, a Circus, 7 cinemas, a Philharmonic, a House of organ music, more than 40 museums, more than 20 art galleries, and the Lviv Municipal Art Center. Numerous art festivals take place in the city every year.

Challenges and threats of urban development. One of the key problems in Lviv is the water supply. The water supply and sewage system are in the poor physical condition and need repair and reconstruction, there are no proper treatment facilities.

There is no waste disposal system in the city, which creates problems not only for the city itself but also for many adjacent territories.

A really urgent problem in the city is significant air pollution by road transport, enterprises of the woodworking industry, heat energy industry, and production of building materials. Thus, only stationary sources of pollution in 2019 released 2.3 thousand tons of pollutants into the atmosphere or 13.3 tons per km².

Kyiv: the capital of Ukraine and the center of the metropolitan area

Business card. Kyiv is the capital of the state and the largest political, socio-economic, cultural, educational, and scientific center of Ukraine. The permanent population of the city (as of January 1, 2021) is 2.92 million people, the actual population is 3.36 million people. Kyiv is the most populous city in Ukraine, the only large city whose population is actively growing (the average increase is 20,000 people per year).

The city of Kyiv is one of the oldest cities in Europe, located on both banks of the River Dnipro in its middle course, in the northern Dnipro region. It is a separate administrative-territorial unit within Ukraine, the administrative center of the Kyiv region and of the country's capital metropolitan region. The area of the city is 835.58 km², the developed area occupies 46% of the administrative city territory. The average population density is 4,000 people/km².

The city is an important transport hub, located at the intersection of important transport routes, in particular, it is crossed by 6 highways of international importance.

The officially recognized year the city was founded is 482.

Functions and connections of the city. The uniqueness of Kyiv today lies in the combination of its metropolitan and commercial functions, as well as the functions as the center of the Kyiv metropolis.

In addition to the capital functions, there are organizational, managing, innovative, creative, transport, communication, spiritual, cultural, informational, and representational functions.⁷⁷ Today city is a center for providing various highly qualified business services. The main international markets for goods and services are concentrated in Kyiv, its investment and innovation activity is developing, and the national wealth of the state and related tax potential is increasing. With 0.14% of Ukraine's territory, Kyiv accounts for 7.1% of the population, 23.4% of GRP, 18% of income, and 17% of expenditure of the Ukraine

⁷⁷ Pidhrushnyi, H. P., & Denysenko, O. O. (2010). Cities-metropolises as the newest form of territorial organization of society. *Experience and prospects of development of cities of Ukraine: Collection. of science pr. Issue 18.* 65–78. [In Ukrainian].

population (2019). The share of Kyiv in the total amount of the country's population wages is 22%, in the total amount of income from the property is 38.1%, and in the total amount of purchases of goods and services is 16.5%, which largely explains the attractiveness of the capital for internal migrants.

Today, Kyiv is the only city in Ukraine with the features of a global city and, according to the GAWC group's approach, belongs to the Beta category in the rating of global cities 2020.⁷⁸

During the 21st century, the transition from industrial to post-industrial type of economic development is noticeable in the capital of Ukraine.⁷⁹ The total number of enterprises in the city is 101,864 and 96% of them are small enterprises. The public service sphere dominates among all enterprises by type of economic activity with the highest share held by enterprises of trade and automotive repair (32%). It is positive that a significant share (14%) belongs to enterprises with professional, scientific, and technical activities, which strengthens the function of the creative industries in the capital. The dominance of the public service sphere is also explained by the structure of employment by types of economic activity. Residents of Kyiv are mainly employed in trade and providing services including real estate, financial, and IT fields, as well as management, education, and scientific activities. Kyiv is an important scientific and educational center, it houses 90 higher education institutions (65 universities, academies, and institutes, as well as 25 colleges, technical and vocational schools). The number of institutions that carry out scientific research and development at the end of 2019 was 339. In general, the share of the public service sector in Kyiv is more than 80%.

The share of realized Kyiv industrial products in the economy of Ukraine is 11.8%. The city's priority industries are the supply of electricity, gas, steam and air conditioning, pharmaceuticals,

⁷⁸ The world According to GaWC 2020. URL:

<https://www.lboro.ac.uk/microsites/geography/gawc/world2020t.html>

⁷⁹ Pidhrushnyi, H. P. (2015). Post-industrial transformations in the economy of large cities of Ukraine. Functions of cities and their impact on space. Ed. L. G. Rudenko. *Kyiv: Phoenix*, 102–118. [In Russian].

production of rubber and plastic products, engineering, metallurgical production, and other activities. According to the number of full-time employees, the share of industrial production in the structure of the city's economy is 11%. Compared to the cities in EU countries, Kyiv lags far behind in terms of the number and quality of industrial and innovation parks, while infrastructure supporting entrepreneurship and the system of local industrial production need modernization with the use of the latest technologies and innovations.

Functions of Kyiv as a metropolis are formed by the presence of transnational companies' representative offices, financial and credit institutions; convenient transport links at the national and international level; institutions and institutions of higher level services; higher education institutions, scientific research institutes, and technological centers; significant and well-known cultural institutions, cultural events of national and international level; specific *spirit of a place, beauty of a place* caused by spatial factors.⁸⁰ Among all Ukrainian cities, the capital is the most dynamic pole of growth⁸¹ and interregional center that affects the socioeconomic development of several regions, primarily by forming a single labor market.⁸² Given the political level of integration, Kyiv has 56 sister cities.

The current Development Strategy of Kyiv till the year 2025⁸³ defines the main long-term development goal as improving the residents' quality of life, which is determined by economic well-being and comfort of life in the city with rich historical tradition. The city positions itself as a dynamic "smart city" that stimulates innovation, is

⁸⁰ Marszał, T. (2004). Someremarkson metropolitan development. *StudiaRegionalia*. Vol. 14. *Urban and regional development—concepts and experiences*. Warszawa. 129–131.

⁸¹ Pidhrushnyi, H. P. (2017). Improvement of the spatial organization of society in Ukraine based on the formation of a system of growth poles. [In Ukrainian].

⁸² Pidhrushnyi H. (2010). Cities-metropolises as the latest form of territorial organization of society. *Experience and prospects of the development of Ukrainian cities. Collection of scientific works*. (18). P. 75. [In Ukrainian].

⁸³ Strategy for the development of the city of Kyiv until 2025. URL: <https://dei.kyivcity.gov.ua/files/2017/7/28/Strategy2025new.pdf> [In Ukrainian].

open for business, comfortable, green, and balanced, has transparent management, and preserves its originality and uniqueness.

Human capital. The permanent population of the city (as of January 1, 2021) is 2.92 million people. As of 2020, children under 14 made up 17%, and elderly residents—15% of the city's population. The average age of the population is 40,⁸⁴ which indicates a more or less balanced age structure of the population. There are 129 health care facilities, 24 theaters, 36 museums, 143 libraries, 9 concert venues, a philharmonic hall, 141 cult religious buildings operating in Kyiv, etc. In 2020, 17,258 students of different ages studied in city art schools of various directions. The city is known throughout the world for its architectural monuments and buildings. All of the above raises the population's cultural, spiritual, and intellectual quality of life level not only in the city, but also in the surrounding territories, and forms significant competitive advantages for Kyiv. The level of life and living conditions for Kyiv residents are much higher than in peripheral regions of Ukraine. This creates a danger of mass rural population exodus to Kyiv, which will create a significant number of negative consequences.

Transportation and mobility. Kyiv enjoys a developed transport network, consisting of roads, railways, subways, waterways, and bridges.

In terms of the level of territory saturation with road and transport networks, Kyiv is significantly inferior to most European capitals and large world cities. Currently, the city has 1,630 km of roads, 150 bridges and overpasses, and 221 underground pedestrian crossings. The length of the main street network in Kyiv is 624.8 km and its density is 2.13 km/km² (in Moscow—4.4 km/km², London—9.3 km/km², and Paris—15.0 km/km²).⁸⁵

⁸⁴ According to the Demographic Passport of Kyiv. URL: http://database.ukrcensus.gov.ua/MULT/Dialog/statfile1_c_files/pasport.files/pasport/80_uk.htm#02 [In Ukrainian].

⁸⁵ Dronova, E., Boklag, E. (2017). The impact of the Kyiv transport system on citizens life and mobility. *Visnyk Kyivskogo natsionalnogo universytetu, Geografiya [Bulletin of Taras Shevchenko National University of Kyiv, Geography]*, 1–2 (66–67), 94–100 (in Ukrainian, abstr. in English).

The public transport system includes bus transportation, subway, tram, and trolleybus. There is also a cable car route and a city electric train. The Kyiv transportation network includes 107 buses, 45 trolleybuses, 21 tram routes, and 2 high-speed tram lines.⁸⁶ There are 3 subway lines in operation: Today, the subway has 52 stations and 3 transfer points, and the total length of tracks is 69.6 km.

Motor transport is the main air polluter in the city (84.4% of all emissions). The primary task for improving transport accessibility in the city is to solve the problem of the Dnipro river bridge overload and to complete the construction of the Great Ring Road.

Organization of urban space. Due to its attractiveness, Kyiv faces a number of problems. First of all, it is due to the fact that private economic priorities now prevail over solving the city's social or environmental problems. The urban space is chaotically developed with residential complexes, and various business and shopping centers while green and public spaces disappear, and with ill-conceived changes in the centers of gravity, the transport collapse occurs. There are attempts to "adapt" the historical city center to the needs of business and administrative authorities. The consequence of this is the appearance of many new buildings erected in some places even against the requirements of UNESCO.

Modern practice to regulate the use of Kyiv's spatial potential shows that in the conditions of deindustrialization, the real-life process of the city does not fit into the framework of the functional zones allocated in the urban planning documentation. The city is gradually becoming more compact, functions are being combined in some areas, and abandoned industrial areas are being developed as residential ones. Centers of business, administrative, and government activities (business centers, representative offices of TNCs, banks, institutions of the state, and municipal government) are mainly concentrated in the central part of the city. This leads to a further increase in significant functional differentiation between city districts. Significant disparities are evident between the right-bank and left-bank regions. Almost 80%

⁸⁶ Official website of *KP Kyivpastrans*. URL: <https://kpt.kyiv.ua/>

of jobs are concentrated on the right bank, and more than 40% of housing is on the left bank. As a result, there are active intra-urban labor movements of the population, covering distances from the place of residence to the place of work, people sometimes spend up to 1.5–2 hours, taking into account constant traffic jams. During rush hour, the traffic load on the bridges over the Dnipro increases significantly.

As a legacy of Soviet modernist planning, Kyiv inherited large areas of green spaces, parks, and squares. According to “*Kyivzelenbud*” KO, data the territory of public and special purpose green areas within the city limits as of October 1, 2020, is 41,126.46 hectares or 48.21% of the entire city area, including 7,147.6 thousand hectares within the limits of urban development. The actual provision of Kyiv population with green spaces including urban and suburban forests is 138.71 m²/pers., and green areas within the urban development area—are 24.11 m²/pers. Since 2005, the area of green spaces has decreased by 19.19%.⁸⁷ There are 128 parks with a total area of 3,394.02 hectares, 618 public squares with an area of 456.53 hectares, 49 boulevards with an area of 152.04 hectares, as well as 31.6 thousand hectares of forest, including such specialized parks as Botanical garden after Academician O. V. Fomin, *Yunnatsky* Dendrological Park, National Ukraine Academy of Sciences Botanical Garden after M. M. Grishko, Kyiv Zoological Park, Museum of Folk Architecture and Life, National Complex *Ukraine Expocenter*.

The important social city-forming factor which determines Kyiv’s current place among other European capitals is its historical and cultural heritage. The historical area in Kyiv covers more than 6,000 hectares and the total heritage fund is 10,000 objects. In total 2,569 cultural and architectural monuments are registered on the territory of the city. Six nature reserves and two historical and architectural museums have been created on the basis of historical heritage complexes. Three nature reserves are concentrated in the central

⁸⁷ The project of the program of integrated development of the green zone of the city of Kyiv until 2030. URL: <http://kyivzelenbud.com/about/strategiya-rozvytku/> [In Ukrainian].

historical part of the city: State Historical and Architectural Reserve *Ancient Kyiv*, National Reserve *Sofia Kyivska*, National Kyiv-Pechersk Historical and Architectural Reserve. Two complexes of monuments—the Cathedral of St. Sophia with monastic buildings and the ensemble of the Kyiv-Pechersk Lavra are included by UNESCO in the List of World Cultural Heritage Sites. However, a comprehensive program for the protection of the city’s architectural and cultural heritage is not implemented, and many historical monuments are under threat of destruction. As a result of chaotic and uncontrolled development in the city, there is a real threat of spatial identity loss—the only feature that determines the attractiveness of Kyiv’s image at the global level.

Challenges and threats of urban development. Generally, the condition of the environment in Kyiv is defined as unsatisfactory. The city has a high level of air pollution and water bodies, a significant volume of waste generation. Financing for the city’s environmental protection activities is insufficient. Other weaknesses and threats, as well as advantages and opportunities for the city’s development are shown in the *Table 2.2.2*.

Table 2.2.2. SWOT-analysis of Kyiv city development [Based on ⁸⁸]

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> • Capital city status. • Social, economic, political educational, and scientific center of the country. • Center of the highest capital and resources concentration in Ukraine. • Availability of all means of transportation. • Diversified city economy and system of financial institutions. 	<ul style="list-style-type: none"> • Inadequate transparency of the city governmental bodies. • High level of bureaucratic obstacles slowing down business development. • Worn out community engineering and transportation infrastructure. • Obsolete housing stock. • Lobbying the interests of developers and private coalitions of authorities.

⁸⁸ Development strategies of the city of Kyiv until 2025. URL: <https://dei.kyivcity.gov.ua/content/strategiya-rozvytku-mista-kyieva-do-2025-roku-nova-redakciya1.html> [In Ukrainian].

2.2 FRAMEWORK DEVELOPMENT CONDITIONS OF THE UKRAINIAN CITIES

- | | |
|--|---|
| <ul style="list-style-type: none"> • Developed scientific and educational infrastructure, and qualified personnel. • High level of innovation. | <ul style="list-style-type: none"> • Lack of clear focus on the priority sectors of the economy. • Neglected commercial and administrative zones. • Unregulated and chaotic construction leading to the city losing its historical look and public spaces. • High density of population. • Low level of inclusiveness and barrier-free environment. • Low level of population involvement in making decisions. • The High number of potentially dangerous objects. |
|--|---|

OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> • Opportunities to increase city budget inflows through the legalization of the gray economy. • Significant potential in the development of tertiary and quaternary sectors of the economy. • Favorable economic geolocation of the city at the international transportation crossroads. • Significant tourism potential including the historical and cultural heritage of the city. • Potential of ineffectively used city territories, particularly neglected commercial and industrial zones. 	<ul style="list-style-type: none"> • Ageing of population, replacement of local residents by migrants. • Worsening the health of the residents. • Corruption at all government levels. • Unpredictable economic and political situation in the country. • Not following the priorities and responsibility sharing. • Flawed functioning of the government regulatory mechanisms (nontransparent access to resources, lack of information, etc.).

Table 2.2.2. SWOT-analysis of Kyiv city development

[Based on (continuation⁹⁴)]

- | | |
|---|---|
| <ul style="list-style-type: none"> • Renovation of outdated residential housing stock. • Implementation of anticorruption and deregulation reforms. | <ul style="list-style-type: none"> • Lack of personnel for the development of the propulsive sectors of the economy. • Trend in crime rate and deviant behavior increase. |
|---|---|

2.2 FRAMEWORK DEVELOPMENT CONDITIONS OF THE UKRAINIAN CITIES

- European and democratic development vector.
 - Small business development, particularly the innovative ones.
 - Quality changes in the city government institutions.
 - Revitalization of the capital city's cultural environment.
- Loss of green zones and, particularly, the greenest capital city of Europe.
 - Threat of natural disasters, pandemics, and following quarantine limitations.
 - Threat of terrorist acts and geopolitical risks.

Kharkiv: a large city in eastern Ukraine

Business card. Kharkiv is the largest city in Eastern Ukraine and the second most populous city in Ukraine, a large industrial and transport center, a significant scientific and cultural center, and the center of the historical and geographical region of Slobozhanshchyna. Kharkiv was founded in the middle of the 17th century (later, the year 1654 was chosen as the year of foundation), however, archaeological findings show that there were settlements on the territory of the modern city as early as the Bronze Age (II millennium BC). The city is located in the northeastern part of Ukraine, on the border of two landscape zones—the Forest Steppe and the Steppe, near the confluence of the Lopan and Uda rivers, which flow into the Siverskyi Donets River. Its elevation above the sea level ranges from 90 to 192 m. The area of the city is 370 km². The length of the city is 24 km north to south and 25 km east to west. The population of Kharkiv is 1,446,107 people (as of December 1, 2019).⁸⁹ The population density is 3,875 people/km².

Functions and connections of the city. In the territorial division of labor in Ukraine, Kharkiv is distinguished by a high level of mechanical engineering and metalworking development. A special place is taken by science-intensive industries: tractor and agricultural equipment engineering, space technologies and aviation production, machine tool

⁸⁹ Population (estimated) as of January 1, 2019 and average population in 2018. Main Department of Statistics in Kharkiv Region. URL: <http://kh.ukrstat.gov.ua/2019rikchiselnistnaselenna/2921-chiselnist-naselennya-za-otsinkoyu-na-1-sichnya-2019-roku> [In Ukrainian].

engineering, heavy machinery, and energy machinery. Large enterprises in the light, food, and chemical industries also operate in the city, as well as the developed housing industry.

Mechanical engineering is one of the main budget-generating branches in the Kharkiv economy. Leading enterprises of the mechanical engineering industry are *PSC Turboatom*, *PSC Pivdenkabel Plant*, *SNME Komunar Association*, *Kharkiv State Aviation Production Enterprise*, *SE Kharkiv Machinery Construction Plant FED*, *LLC Kharkiv Lifting and Transport Equipment Plant*, *SE Plant after Malyshev*, *OSC Ross*, *OSC Kharkiv Machine Tool Construction Plant*, *SE Electrovazhmash Plant*, *PSC Hartron*, *PSC Electromashina*, *PSC Avtramat*, *PSC Kharkiv Ball bearing Plant*, *PSC Kharkiv Tractor Plant*, *PSC Kharkiv Machinery Constructing Plant Miner's Light* and others.

The region's IT industry includes more than 510 service and product IT companies, and the number of IT specialists has exceeded 45,000 people.⁹⁰ In recent years, the main direction of Kharkiv IT service companies has become medicine, e-commerce, education, insurance, and retail. Development of services for media, entertainment programs, and games, services for banking, fin-tech services, the telecom industry, logistics, and manufacturing are also traditionally strong points of Kharkiv IT companies.

In recent years, the IT industry has become a leader not only in terms of foreign currency revenue but also in terms of the amount of taxes it generates.

In terms of the number of IT companies and IT specialists, Kharkiv is ahead of other IT locations in the country, second only to the capital. In terms of the concentration of IT specialists, Kharkiv is on par with Kyiv. More than 95% of IT industry sales are exports of IT solutions and IT products in the USA markets (78%), European Union countries (15%), and Israel.

⁹⁰ Research of the IT sphere of Kharkiv: \$1.5 billion market, 500 companies and 45,000 specialists. AIN.UA. <https://ain.ua/2021/09/09/union-truda-it-kharkiv-2021/> [In Ukrainian].

Each IT specialist creates 3.5 jobs, so in the Kharkiv region alone, thanks to the powerful IT community, almost 160,000 people have additional permanent work in various industries, from housing and office construction to household services, shops, schools, and kindergartens.

As of July 1, 2021, 42 exchanges, 44 insurance organizations (companies), 49 credit unions, and 8 leasing companies were registered in the city. According to the NBU, there are 529 active structural branches of banks in the Kharkiv region.

According to the Kharkiv region General Department of Statistics information, in 2019 foreign investors invested \$6.5 million in direct investment in the city's economy (stockholder capital).⁹¹

The amount of direct investment (stockholder capital) involved in the city's economy as of December 31, 2019, amounted to 409.2 million dollars. 303.6 million dollars were invested from EU countries and from other world countries—105.7 million dollars.

The top ten investor countries, which amount to more than 90.0% of the total volume of direct investments, include Cyprus—\$217.8 million, the Virgin Islands—\$42.3 million, and Great Britain—\$39.7 million. Poland—\$13.5 million, Russian Federation—\$12.9 million, Switzerland—\$11.4 million, USA—\$11.1 million, Belize—\$10.0 million, Germany—8.9 million dollars, Luxembourg—7.5 million dollars.

The volume of direct investments (stockholder capital) from the city of Kharkiv to the world economy as of December 31, 2019 amounted to 10.9 million dollars.

There are 426 communal educational institutions operating in the city, among them: 181 general education schools, 4 evening schools, boarding school of I–II degrees No. 14, inter-school educational and industrial complex, *Rodyna* orphanage, 210 preschool and 28 extra-curricular educational institutions. There are 13 professional (vocational and technical) institutions.

⁹¹ Main Department of Statistics in Kharkiv Region. URL: <http://kh.ukrstat.gov.ua/proholovne-upravlinnia> [In Ukrainian].

As of October 1, 2021, the network of cultural institutions included 25 primary specialized art educational institutions; 10 library institutions—legal entities uniting 73 branch libraries; 11 club establishments; 4 museums; *UC Central park of culture and recreation after M. Gorky* and *KP Memorial Park Drobytskyi Yar*.

As of October 1, 2021, the sports base of Kharkiv consists of more than 3,300 facilities: 17 stadiums; 6 athletic cores; 4 track and field arenas; 2.1 thousand flat structures; 387 gyms; 23 swimming pools, 112 shooting ranges, cycling track, archery range; 3 buildings with artificial ice; 2 rowing and sports bases, ski base; 680 other sports facilities.

According to sister city and cooperation agreements, Kharkiv maintains friendly relations with 34 cities in 23 countries of the world. The city of Kharkiv is a member of the International Association EUROCITIZ; of the International Association of Cities—Winners of the European Prize; World Federation of Tourist Cities WTCF.

Kharkiv is the first city in Ukraine to receive a full set of Council of Europe awards: Diploma, Honorary Flag, Table of Europe, and Prize of Europe. Municipalities and regions of Europe are honored with these awards for European activities, the development of friendship and cooperation between European regions, and the deepening of ties between them. Receiving European awards not only significantly raises the city's status, but also opens up wide opportunities for cooperation with promising cities and regions, as well as with international organizations and foundations.

Human capital. The population of Kharkiv as of January-August 2021 (according to the latest statistical data) decreased by 10,000 people and as of September 1 was equal to 1,423,900 people. The natural reduction of the existing population of the city amounted to 10.7 thousand people. Due to migration, the population of the city increased by 722 people. For a long time, the city has been experiencing a natural increase in the population, and the status of *a millionaire city* is maintained due to the mechanical movement of the population.

Kharkiv is the scientific and intellectual capital of our country. In terms of the number of scientific and technical organizations, Kharkiv ranks second in the country after Kyiv. The powerful scientific potential

of Kharkiv is based on an extensive network of enterprises, organizations, and higher educational institutions.

In 2020, 11,442 specialists worked in the city's scientific organizations. Among the total employees of scientific and technical activities, there are 985 people with the academic degree of doctor of sciences; 2,764 with Ph.D./candidate of sciences degrees; 5,863 with master degrees, and 669 with bachelor degrees. Scientists perform scientific and technical work in 95 institutions in the city.⁹²

Kharkiv is the birthplace of some world-renowned scientific schools whose foundation involved scientists with world names—physicists L. Landau, K. Sinelnikov, B. Lazarev, B. Verkin, A. Ioffe, A. Walter, astronomer M. Barabashov, mathematicians I. Ahiezer, M. Ostrogradskyi, chemists M. Beketov, O. Palladin, biologists I. Mechnikov, V. Yuryev and others.

Kharkiv is where in Europe the atom was split for the first time, where the most powerful radio telescope in the world was created, an accelerator of elementary particles was developed, and the latest radiation and space technologies, unique installations for radar probing of the atmosphere and growing single crystals were proposed.

Medical science is represented by such important fields as cryomedicine, medical radiology, neurosurgery, microbiology, orthopedics and traumatology, neurology and psychiatry, pharmacotherapy, and general therapy.

The first human reproduction laboratory in Ukraine was created in Kharkiv and the first child in Ukraine was born after in vitro fertilization. Among the world-renowned scientific centers are the Kharkiv Physical and Technical Institute National Scientific Center, the Scientific and Technical Complex *Institute of Monocrystals* of the Ukraine National Academy of Sciences, and the Institute of Mechanical Engineering

⁹² Scientific and educational potential. Entrepreneurship and the consumer market of the city of Kharkiv. Department of Administrative Services and Consumer Market. URL: https://ppr.kharkov.ua/ua/scientific-and-educational-potential_xb [In Ukrainian].

Problems after A. N. Pidgorny of the Ukraine National Academy of Sciences, Institute of Cryobiology and Cryomedicine Problems.

Kharkiv is rightfully considered the student capital of Ukraine. As of the 2019/2020 academic year, 60 higher education institutions of various ownership and accreditation levels trained specialists in the Kharkiv region, including 23 universities and 8 academies, 1 institute, 24 colleges, 3 specialized schools, and 1 technical school.

The specialization of Kharkiv universities is very diverse: from technical to agricultural, from military to creative, and from medical to economic. 169,715 students study at Kharkiv universities. Student fraternity and student subculture have long become not just an integral part of Kharkiv, but its symbols and business card.

Transportation and mobility. Kharkiv has a favorable transport and geographical location at the intersection of international routes *North-South* and *West-East*. Today, it is a major transportation hub: important railway lines and highways lead to many large industrial centers located both in Ukraine and beyond.

During the first nine months of 2021, 197.9 million passengers were transported by all types of city transport, among them: 116.5 million passengers by subway, 62.2 million passengers by ground electric transport, and 19.2 million passengers by bus transport.⁹³

The international airport *Kharkiv* operates in Kharkiv. The airport is located in the southern part of the city, 12 km from the center. Kharkiv is the nodal center of railway communication in Eastern Ukraine, which connects six adjacent regions and provides transport links with other countries. **Organization of urban space.** The huge scale of capital and residential construction and the increase in Kharkiv's population, can be explained by the dynamics of its development as an industrial and

⁹³ The main indicators of the economic and social development of the city of Kharkiv for 9 months of 2021. The official website of the Kharkiv City Council, the Mayor, and the Executive Committee. URL: <https://www.city.kharkov.ua/uk/document/osnovni-pokazniki-ekonomichnogo-i-sotsialnogo-rozvitku-m-kharkova-za-9-misyatsiv-2021-roku-65020.html> [In Ukrainian].

cultural center during the Soviet period, which led to significant expansion of the city limits.

The peculiarity of the industrial giant Kharkiv is that it is quite green among similar cities. Green plantations occupy an area of 15.4 thousand hectares. Residents use 31 parks, 5 gardens, 150 squares and boulevards, and more than 500 green recreation areas. Each resident of the city has an average of 15 m² of green spaces.⁹⁴

There are 15 territories and objects of the state and local significance nature reserve fund with a total area of 467.7 hectares on the territory of Kharkiv city. There are 549 monuments of architecture and urban planning in the city of Kharkiv, 60 of which are of national importance.

The large-scale reconstruction of public spaces, which took place during the last decade in Kharkiv, was accompanied by work on a new appearance of the city, and the concept of urban *Europeanness* was supposed to become a distinctive feature of the city. Kharkiv is the only city in Ukraine that has a full set of awards from the Council of Europe—Diploma, Honorary Flag, Table of Europe, and Prize of Europe. Gorky Park received the international prize *Golden Pony Awards–2013* for the modern concept and thematic design of the park.

The city of Kharkiv can be called a typical example of a transforming industrial city. Kharkiv is turning from a large industrial center into a Smart city. However, such transformations brought not only positive consequences but also caused a number of problems (**Table 2.2.3**) which slow down the development of the city in the post-industrial direction.

⁹⁴ Forests. Entrepreneurship and the consumer market of the city of Kharkiv. Department of Administrative Services and Consumer Market. URL: <https://ppr.kharkov.ua/ua/forest> [In Ukrainian].

Table 2.2.3. Kharkiv development problems in the period of postindustrial transformations⁹⁵

Problems of transformation of the city's economy:	<ul style="list-style-type: none"> • reduction of industrial production • aggravation of economic problems and economic crisis • repurposing of the city's economy increase in unemployment • transformation of the employment structure • emergence of greyfields and brownfields
Demographic problems:	<ul style="list-style-type: none"> • reduction of the population • reduction of natural and migration growth
Problems of social security of the population:	<ul style="list-style-type: none"> • social stratification of the population • reduction of measures to provide for the population
Problems of urban space transformation:	<ul style="list-style-type: none"> • presence of abandoned and abandoned industrial areas within the city • liberalization of city policy in favor of business
Problems of the relationship between the population and the city:	<ul style="list-style-type: none"> • local and international image policy of the city • passivity in the field of tactical and local urbanism ignorance and lack of awareness of the population about the level of development of the city

Air pollution is an acute problem in Kharkiv. The main source of pollution is transportation (more than 90% of the total volume). The state of housing and communal services in the city is also a source of

⁹⁵ Suptelo, O. S. (2020). Problems of the development of the city of Kharkiv in the period of post-industrial transformations. Region–2020: optimal development strategy: materials of the international scientific-practical conference (Kharkov, October 8–9, 2020) / Head. ed. Board of L. M. German. *Kharkiv: KhNU after V. N. Karazina, 2020.* 182–185. URL: <https://dspace.uzhnu.edu.ua/jspui/bitstream/lib/33017/1/Збірник20%конф.Регіон-2020.pdf#page=182> [In Ukrainian].

considerable concern. Thus, the technical wear and tear of the housing stock in the city of Kharkiv is more than 65%.

According to the existing city development strategy, Kharkiv is positioning itself as a *smart* city,⁹⁶ and is increasing digitalization opportunities for the implementation of the principles of Information city.^{97, 98} Kharkiv has a significant potential for successful development through post-industrial transformations.

Odesa: a large city in Southern Ukraine

Business card. Odesa is the largest administrative, economic and cultural center of Southern Ukraine. The city was founded on September 2, 1794. It is located on the northwestern coast of the Black Sea, at the crossroads of the routes from Northern and Central Europe to the Middle East and Asia. The area of the city is 16.2 thousand hectares, with a housing area of 12.5 thousand hectares. Modern Odesa is one of the largest cities in Ukraine, the length of which north to south reaches 35 km. The population of the city (as of January 1, 2019) is 1,013,159 people, making Odesa the third most populous city in Ukraine. The population density is 6.2 thousand people/km². The city budget in 2020 was UAH 10.45 billion.

Functions and connections of the city. Odesa is the largest seaport in Ukraine and a fully formed local territorial and production complex in the Ukrainian Black Sea region. The foundation of the city-forming base is such areas of activity as trade, metalworking, oil refining, mechanical engineering, production of medicines and food products, resort and spa treatment and beach recreation, and cruise tourism.

⁹⁶ Development strategy of the city of Kharkiv until 2030. URL: <https://create.kharkov.ua/strategy> [In Ukrainian].

⁹⁷ Kharkiv is recognized as the best digital city of Ukraine. URL: <https://www.city.kharkov.ua/uk/news/kharkiv-viznaniy-kraschim-tsifrovim-mistom-ukraini45759.html> [In Ukrainian].

⁹⁸ Kharkiv is the best innovative city in Ukraine according to Kyiv Smart City Forum. URL: <http://izvestia.kharkov.ua/tv-proekty/hi/3253/1281539.html> [In Russian].

Odesa is a large scientific and educational center. Regarding the economic structure, as well as the structure of employment, the city belongs to port and industrial cities with developed resort and recreational functions.

The city of Odesa is one of the main economic centers in Ukraine, which combines industrial, maritime, transport, and resort and recreational complexes, and financial and social infrastructure. The peculiarity of the city is that 49% of the entire region's industrial products are sold here, with almost 60% of capital and more than 40% of direct foreign investments. City also forms more than 60% of the entire region's retail turnover. The seaside and border location provide the city with significant opportunities for the development of international cooperation and economic and investment activity. The economy of Odesa is diversified, which reduces the impact of adverse changes in certain industries and ensures stable revenues in the city budget. The average registered number of full-time employees employed in the city's economy in 2018 was more than 248,000.

More than 600 large and more than 13,600 small and medium-sized enterprises operate in the city. The priority industries of the city are electricity, gas, and water supply, machine engineering, food industry, production of rubber and plastic products, metallurgical production, production of wood products, paper, and printing activities, and other activities.

Organizations and enterprises of Odesa cooperate with international organizations, financial institutions, business circles, and educational, scientific, and cultural institutions of other cities in Ukraine and abroad. To increase the investment attractiveness of the city and establish new investment contacts, business forums (including within the Odessa International Film Festival), IT forums, scientific conferences, festivals, fairs, tourist weeks, Europe Day celebrations, etc. are held in the city on a regular basis.

Today, Odesa ranks second after Kyiv in the number of diplomatic institutions, which indicates the high status of the city in the international relations of Ukraine in general. Odesa is a member of such organizations as *Eurocities* and *League of Historical Cities*. Coordination

meetings of various international groups are held here, in particular within the framework of the Global Network of Intercultural Cities (GIS), etc.

Odesa has 22 sister cities and 12 partner cities.

The image of the city is associated with its history, cultural traditions, and unique atmosphere. It has been fixed not only in the minds of Ukrainians and citizens of neighboring countries of the post-Soviet space but is also well-known throughout the world. Among the metaphors associated with Odesa are *Southern Palmyra*, *port city*, *pearl of the sea*, *sea gate of Ukraine*, *southern capital of Ukraine*, etc. The city is positioned in five directions: as an intelligent, spiritual, sports, commercial and cultural center.

Human capital. The city population (as of January 1, 2019) was 1,013,200 people with a permanent population of 995,500 people, thus Odesa retains the status of a city of a million people. In recent years, the population of the city has increased only due to migration growth, while there is a significant natural depopulation.

As of 2019, children under 14 made up 14.2%, and elderly residents—17.5%, which indicates aging of the city's population. Men made up 47%, and women—53% of the city's population.

In 2016, the total morbidity of Odesa residents was 21,242.7 people, primarily—6,246.6 per 10,000 population, which exceeds the national level. There is a tendency towards the deterioration of health among young people, an increase in the number of socially dangerous diseases, including tuberculosis and HIV/AIDS, as well as mental disorders. In 2016, the incidence of tuberculosis was 110.1 per 100,000 population. Every year, more than 800 people with HIV infection diagnoses are registered in the city.

City educational institutions (including the higher education ones) provide qualified labor to key sectors of the city economy, which creates important intellectual and innovative advantages for Odesa in the context of the availability of a qualified labor force. More than 20 higher education institutions of III–IV accreditation levels operate in the city, of which 9 institutions have the status of *national*, 9 scientific

institutions of the Ukraine National Academy of Sciences, and more than 20 branch organizations.

Transportation and mobility. The main geographical feature of Odessa is its location at the intersection of the most important international routes from Central Europe to the Middle East. The city's wide access to the Azov-Black Sea basin and to major river highways—Danube, Dniester, and Dnipro determine its advantages in terms of transport and geographical location. The city is one of the largest logistics hubs in Ukraine.

Odesa Sea Trade Port is the leader in the volume of cargo transshipment among the ports of Ukraine. The port is connected by transport lines with more than 600 ports in 100 world countries. There are ferry crossings connecting Odesa port with Turkey and Greece. The Odesa port and logistics center includes an oil and gas terminal, a ship repair yard, a transit cargo terminal, and a passenger complex with a sea station and dock, as well as a port fleet.

An extensive network of railways connects Odesa with cities in Ukraine and Europe. It provides transportation needs of Odesa, Mykolaiv, Kherson, Kirovohrad, Cherkasy, and partially Vinnytsia regions, that is, it serves an area of 138,000 km² with a population of about 10 million people. *Odesa* International Airport belongs to the group of the largest airports in Ukraine and is connected by airlines with many Ukrainian cities, as well as countries in Europe, Asia, and Africa.

The status of a business, cultural, and tourist center ensures a high level of public transport development (bus, tram, trolleybus), which carries more than 270 million passengers annually. At the same time, the specifics of the city location determine the passage of the main traffic flows through the city center. At the same time, a significant part of the communication routes needs major repair. All this negatively affects the speed and safety of traffic in the city.

Organization of urban space. Natural and geographical conditions play a major role in the organization of Odessa's urban space. A large part of the city, including the historical center, is located on a plain that rises above sea level by an average of 50 m, which determines the prominent role of observation decks (Primorsky Boulevard, etc.) as an

integral part of public space. The influence of natural conditions affected the functional purpose of individual plots (recreational development, park, leisure center, etc.).

The creation of public space in Odessa has a long history. The city is considered a pioneer in the creation of special public spaces for children, it was the first to follow the practice of building public spaces in European cities, ahead of not only Kyiv but also the capital cities of St. Petersburg and Moscow. In particular, the first kindergarten with entertainment and attractions in the city was opened in 1887.

Currently, Odesa is a typical *port-industrial* city with a developed resort and recreation function. The public space of the city is such that it is being formed, although the city has integral sections-clusters—educational, cultural, recreational, etc. Huge port facilities and industrial zones of the city, located along the coast, occupy about a third of the city's coastline, so they are a serious obstacle to free public access to the seashore, as well as to the effective use of the territory. A huge problem is the inappropriate use of land, in particular, the illegal construction of housing in recreational areas and on the seashore. According to experts, approximately 10% of the city's territory is depressed (neglected) territory that needs reclamation. The most developed public space is the historical center of the city, which is characterized by a complex and high-quality experience of being on the territory for both city residents and numerous tourists. Most of the other public spaces of the city are isolated from each other and do not facilitate the thorough movement of pedestrians.

Odesa has all the problems of *underdevelopment* and traffic congestion in large cities. Characteristic features: there are inaccessible areas and barriers for low-mobility population groups, the enclosed Odessa courtyards and blocks of new buildings, widespread fenced territories, and some closed spaces are regulated (subordinate to a certain department). In terms of the amount of public infrastructure (benches, tables, playgrounds), Odesa is significantly inferior to European cities, having even in the central areas 1 seat per 5.8 thousand m² (for comparison: in the center of Stockholm 1 seat per 800 m², in Copenhagen—on 830 m²).

Green areas of public use (parks, gardens, public squares, and pedestrian boulevards) are unevenly distributed throughout the city. The area of public green areas is 920 hectares, which corresponds to a ratio of 9.3 m²/person. Green areas, including the Botanical Garden of ONU after I. I. Mechnikov, are concentrated in the center, there are two pedestrian boulevards (Primorsky Boulevard, Zhvanetskyi Boulevard), a zoo, and the *Health Route* laid out in the 1970s, along which electric cars and bicycles are currently allowed. The unsatisfactory level of inclusion in the pedestrian space is compensated by the presence of unique projects, in the particular inclusive beach for the disabled, equipped with ramps and a ramp to the sea.

Tourism is a strategic direction of the city's development. Features of accommodation, favorable climate, developed resort and recreation complex, beaches, transport, financial and socio-cultural infrastructure attract tourists and more than a thousand annual public events. The most famous are *Odesa Humorina*, *Odesa International Film Festival*, and the sailing regatta *Odesa–Istanbul*.

Odesa is a unique object of national culture, architecture, and urban planning, a unique example of the cultural heritage of Ukraine, there are theaters, a philharmonic hall, cinemas, numerous museums, and cultural institutions. In 2001, the city was included in the list of historically inhabited cities of Ukraine; in 2008, Odesa's application to join the international League of Historic Cities was approved, and in 2009, the historic center of the city was included in the UNESCO World Heritage List. The realization of recreational potential is facilitated by the presence of health and wellness resources within the city: reserves of mineral water from the *Odeske*, *Kuyalnytske* and *Chornomorske* springs, and therapeutic muds from *Kuyalnytske* and *Khadzhibeyske estuaries*.

Challenges and threats of urban development. The state of the environment in Odesa is generally characterized as stable. The ecological situation of the air basin is determined by the main sources of pollutants: motor vehicles and enterprises of the energy and processing industries. The volume of emissions per person in 2018 was 18 kg, which is 3 times lower than the Ukraine average. One of the most

important problems in Odesa is the insufficient supply of drinking water. The main source of fresh water supply is the River Dniester, where a high degree of pollution is observed in the area of drainage regeneration and sanitation. There is high wear and tear in cleaning network equipment. About 450,000 tons of waste is generated annually in the city, which is transported to the only operating landfill *Dalnysky Karieri*. The city has accumulated more than 10 million tons of waste.

Other weaknesses and threats, as well as advantages and opportunities, are shown in the **Table 2.2.4**.

Table 2.2.4. SWOT analysis of the development of Odessa

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> • Favorable seacoast location. • Availability of all means of transportation. • Diversified city economy and system of financial institutions. • Relatively high salary and low unemployment levels. • Available recreational, tourist, and health improvement potential and infrastructure as well as historical and cultural heritage. • Developed scientific educational infrastructure and qualified personnel. • Nature and climate conditions are comfortable for living. • Very special mentality of Odessa residents (humor, entrepreneurship, cultural identity, and tolerance) 	<ul style="list-style-type: none"> • High density of population. • Low competitiveness of industrial enterprises and tourist sector. • Worn-out community infrastructure, and its high accident rate. • Low-quality roads and level of government electronic networks. • Air and seawater pollution, waste accumulation, the deficit of drinking water, and undeveloped green zones. • High crime rate, the spread of social unrest. • The stretch of the city and its infrastructure and communications mainly along the sea “South to North”

2.2 FRAMEWORK DEVELOPMENT CONDITIONS OF THE UKRAINIAN CITIES

OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> • Growing importance of the city as the biggest military and naval tourist and rehabilitation center of Ukraine. • Expansion of investment activities (especially tourism and IT sector). • Facilitating further clusterization. • Participation of the city in the implementation of EU projects and donor programs. • Conducting cultural events at national and international levels (film festivals, comedy shows, etc.). • Development of business, particularly the innovative one. • Increase transportation and transit potential. 	<ul style="list-style-type: none"> • Natural depopulation and physical growth including due to forced internal and external migrations. • Spread of dangerous diseases and deviant behavior. • Shadow economy. • Increase in the energy dependence of the economy. • Hidden activity of criminal groups (smuggling, human trafficking and drug trafficking). • Unstable tourist flows. • Threat of terrorist acts and geopolitical risks.

2.3 Evaluation of the Ukrainian cities' sustainability

The search for an optimal approach to assessing how balanced urban development is will obviously continue and will be determined by the scale of research, the emergence of new concepts, and cross-sectoral topics. The research conducted in this section is based on the author's methodology, presented in Section 1, which, in turn, is based on the use of quantitative indicators (a set of indicators of balanced urban development) and perceptual component (based on a survey of residents from different cities of Ukraine). Particular attention was paid to the problem of inclusiveness (clause 2.3.3), which was determined by taking into account expert opinion using several cases— micro districts of the city of Kyiv.

2.3.1 Indicative assessment of the Ukrainian cities' balance

According to the developed methodology (see 1.5), we calculated how balanced the development of Ukrainian cities is according to four blocks of indicators and the total index of balancedness. The calculations were performed within three groups of cities: large, medium, and small, which, as indicated by the specificity and significant differences in the values of individual indicators in the section of each of the specified groups.

The results of the evaluation of large cities are presented in **Table 2.3.1.1**.

As can be seen from the data in the table, the undisputed leader in terms of the total score of development balancedness is Kyiv. Uzhgorod, Ternopil, Lviv, Kherson, Dnipro, Khmelnytskyi, and Vinnytsia were among this group's most balanced developed cities.

Table 2.3.1.1. Balance of Ukraine's large cities development (points)

Rank	City	Block of indicators				Balancedness total points
		Ecological	Economic	Social	Accessibility	
1	Kyiv	23	28	45	32	128
2	Ternopil	24	23	43	34	124
3	Uzhgorod	21	22	41	31	115
4	Lviv	23	22	39	29	113
5	Kherson	23	25	34	30	112
6	Dnipro	23	19	36	32	110
7	Khmelnyskyi	19	20	44	27	110
8	Vynnytsia	17	18	41	33	109
9	Poltava	21	21	34	32	108
10	Lutsk	19	17	43	27	106
11	Ivano-Frankivsk	20	16	44	26	106
12	Odesa	22	20	34	29	105
13	Rivne	18	17	40	30	105
14	Kropyvnytskyi	21	23	32	28	104
15	Kremenchuk	22	20	36	26	104
16	Kharkiv	21	20	32	31	104
17	Zhytomyr	17	16	38	32	103
18	Sievierodonetsk	21	23	37	21	102
19	Chernivtsi	18	21	38	24	101
21	Kamianske	20	14	38	27	99
22	Zaporizhzhia	17	16	36	30	99
23	Krivyi Rig	18	15	34	31	98
24	Berdiansk	20	17	34	27	98
25	Bila Tserkva	18	14	38	28	98
26	Cherkasy	19	19	34	26	98
27	Nikopol	20	16	37	24	97
28	Mariupol	18	19	35	24	96

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Rank	City	Block of indicators				Balancedness total points
		Ecological	Economic	Social	Accessibility	
29	Kramatorsk	20	14	39	23	96
30	Melitopol	21	14	35	26	96
31	Pavlograd	17	15	35	27	94
32	Mykolaiv	16	19	35	24	94
33	Sumy	18	17	35	24	94
34	Chernigiv	18	18	30	25	91
35	Sloviansk	20	15	33	19	87

The social block's indicators contributed mainly to Kyiv's leading position. At the same time, high, although not always the best, indicators are found for almost every indicator from this block. In particular, Kyiv has the highest rate of expenditure on spiritual and physical development per person among large Ukraine cities as well as on health care (UAH 3,785/person in 2019). Kyiv also has high values of expenditures on the social protection of the population.

In Kyiv there is the highest population growth rates in Ukraine—by 6.14%, or 182,229 people in the period 2010–2019. In absolute terms, these are the highest rates in Ukraine. Only satellite cities of Kyiv—Irpin—31.45%, Bucha—24.85%, Brovary—12.35%, Boryspil—8.87% and town Yuzhne—14.76% in Odesa region have better relative indicators located 47 km from the regional center.

Kyiv enjoys the highest population birth rate among large Ukraine cities (11 ppm to percent), and the fourth among all cities in the country. This, in particular, indicates a relatively higher share of the population of younger age groups in the capital, and better economic situation, which is a factor that significantly affects the birth rate.

Kyiv has the highest number of points in the block of economic indicators.

Expenditures from the city budget per person—UAH 20,598 (2019) are the largest among the country's large cities. Kyiv collects the largest amount of taxes on commercial real estate from legal entities among

2.3 EVALUATION OF THE UKRAINIAN CITIES' SUSTAINABILITY

large cities (but not the largest in Ukraine)—UAH 328/person. This also applies to the amount of land tax on legal entities, UAH 655/person.

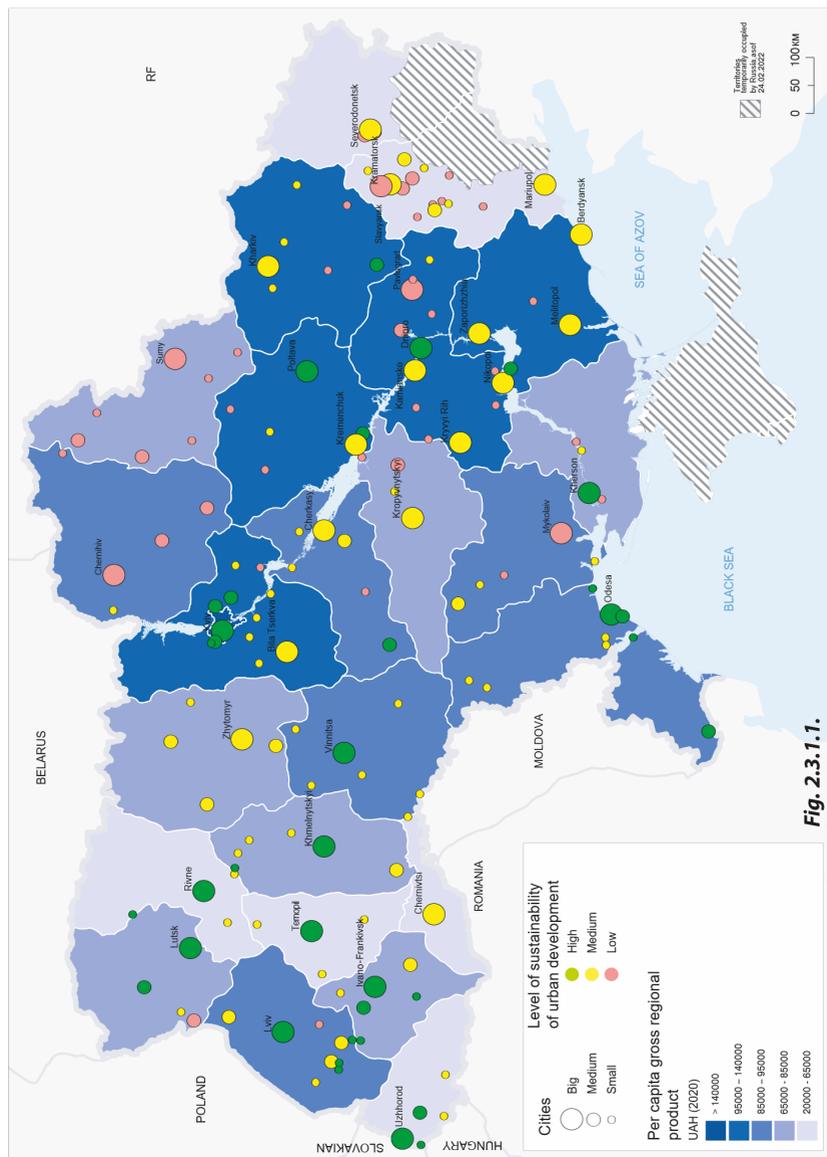


Fig. 2.3.1.1.

The fact that Kyiv has the highest salary among full-time employees in Ukraine is perceived as an axiom. However, we must note certain corrections. As of 2019, Kyiv with an indicator of UAH 155,776/ person had the best indicators among large cities of Ukraine and ranked sixth in the country after Energodar, Varash, Yuzhnoukrainsky, Netishyn, Yuzhne.

Kyiv is the undisputed leader among Ukrainian cities in terms of the cost of one meter of housing—UAH 34,266. The capital of Ukraine also demonstrates high scores for the environmental block and the accessibility block. In general, this determined its leading position among large cities of Ukraine in the ranking of how balanced it is and its status of the city which attracts the largest number of people willing to move to it.

In particular, according to the total points in the block of accessibility indicators, Kyiv, in the group of large cities, is inferior only to Ternopil and Vinnytsia and shares 3–5 places with Dnipro, Zhytomyr, and Poltava. In particular, the capital leads in terms of the multimodality of city transport, the number of “Nova Poshta” branches per 10,000 inhabitants, and the accessibility of international airports and highways of international importance. The city’s position in terms of accessibility to green areas and water bodies is somewhat worse. It should be noted that these trends have not improved in recent years, although today Kyiv has the largest share of green spaces among large cities as a percentage of the city’s total territory. Among other large cities occupying leading positions in terms of the level of balanced development, Uzhgorod, Ternopil, and Brovary have high scores of indicators in the social and ecological blocks, Lviv and Dnipro—balanced with a high number of points for the indicators in each block, Vinnytsia—in blocks of accessibility and social. Sloviansk, Chernihiv, Sumy, and Mykolaiv have the lowest indicators of balanced development. It is mainly due to extremely low values of the indicators in the economic block, and low values of the indicators in the social block. Irpin is among the average cities in terms of the overall

development balance score, Brovary, Chornomorsk, and Izmail also belong to the group of leaders (**Table 2.3.1.2**).

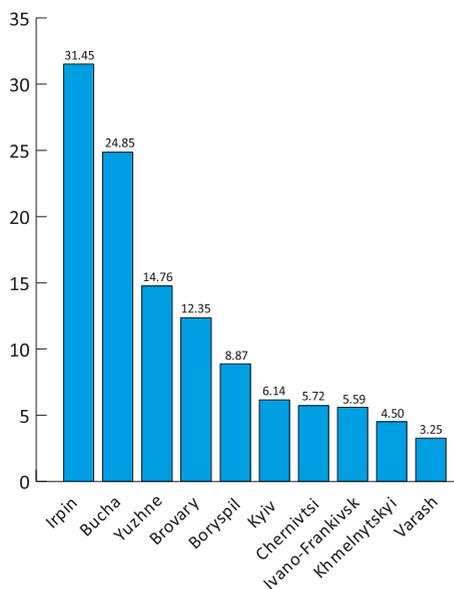
Table 2.3.1.2. Balancedness of the Ukraine medium-sized cities development (points)

Rank	City	Block of indicators				Balancedness total points
		Ecological	Economic	Social	Accessibility	
1	Irpın	26	24	45	28	123
2	Brovary*	22	14	43	30	109
3	Chornomorsk	26	23	38	20	107
4	Izmail	25	19	35	25	104
5	Lozova	22	18	37	21	98
6	Mukachevo	21	17	38	21	97
7	Kovel	20	18	37	20	95
8	Kalush	24	14	36	21	95
9	Gorishni Plavni	24	20	36	15	95
10	Energodar	18	21	40	15	94
11	Boryspil	17	20	34	23	94
12	Uman	24	16	32	22	94
13	Bakhmut	24	13	30	24	91
14	Drogobych	19	14	33	24	90
15	Zvyagel	23	15	33	18	89
16	Kolomyia	23	13	35	17	88
17	Stryi	18	15	34	21	88
18	Smila	22	13	31	21	87
19	Pokrovsk	19	15	35	17	86
21	Berdychiv	17	13	32	24	86
22	Kamianets-Podilskyi	18	16	33	18	85
23	Chervonograd	16	13	33	22	84
24	Pervomaisk	23	10	29	22	84
25	Korosten	17	14	30	22	83

* Population of Brovary in 2020 exceeded 199 thousand residents. However, for the most of the research period, city was in the category of medium-sized cities.

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Rank	City	Block of indicators				Balancedness total points
		Ecological	Economic	Social	Accessibility	
26	Druzhkivka	22	11	31	18	82
27	Novomoskovsk	18	12	31	20	81
28	Konotop	20	11	29	19	79
29	Lysychansk	17	12	27	22	78
30	Nizhyn	15	15	29	19	78
31	Kostiantynivka	21	12	27	17	77
32	Oleksandriya	21	11	27	17	76
33	Pryluki	15	13	28	20	76
34	Rubizhne	19	10	28	18	75
35	Shostka	20	9	27	18	74
36	Novovolynsk	12	12	32	11	67



Irpin, as a satellite town of Kyiv, has been actively using the advantages of this location in recent years. Thanks to this, having and maintaining high scores of indicators in the environmental block, the city was able to increase high total scores for other blocks of balancedness—primarily social and accessibility blocks.

In particular, the city is the leader in Ukraine in terms of the dynamics of the increase in the number of residents (**Fig. 2.3.1.2.**)

Fig. 2.3.1.2. Cities-leaders in terms of the population growth dynamics in the Ukraine (period 2010-2019, %).

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According to the indicator of losses from housing and communal services budget—UAH 2,941/person in 2019, Irpin ranks third among all cities in Ukraine.

According to the such indicator of the economic block as total expenditures from the city budget—UAH 20,784/person in 2019, Irpin ranks second among medium-sized cities of Ukraine (after Enerhodar) and fifth among all cities of Ukraine.

Medium-sized cities such as Novovolynsk, Shostka, Rubizhne, and Pryluky have the lowest balancedness scores. They are characterized by low values of indicators in all blocks of balancedness.

Small cities make up the largest group of urban settlements, for which the level of balancedness was calculated (**Table 2.3.1.3.**)

The cities of this group are characterized by the biggest differences in the values of individual indicators.

It should also be noted that many cities are characterized by the decisive influence of one single factor that shapes the value of the indicators:

- a city-forming enterprise and its influence on indicators of economic, ecological, and social blocks);
- geographical location and its impact on accessibility indicators and indicators of the economic bloc. Separately, in this sense, cities located in the zone of influence of the capital and other large cities stand out;
- the natural resources factor and its impact on the ecological situation, economic development, and possibility to attract large investments, etc.;
- factors of historical nature and others.

For cities in this group, the factor of successful management is also of great importance—under the condition of successful management of urban development, and the presence of effective management, many small cities can significantly improve indicators of the balancedness in their development.

Of all the small cities, Yaremche has the highest level of balancedness, which is far ahead of other cities in the group in terms of

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this indicator (the closest to it are Morshyn, Bucha, Chop, Truskavets Netishyn, Yuzhne, Bolekhiv).

Yaremche is the only city that has the highest balancedness scores in its group in three blocks of indicators—ecological, economic, social, and high indicators in the block of accessibility.

Table 2.3.1.3. Balancedness of the Ukraine small cities development (points)

Rank	City	Block of indicators				Balancedness total points
		Ecological	Economic	Social	Accessibility	
1	Yaremche	31	28	46	24	129
2	Morshyn	30	25	31	27	113
3	Bucha	26	18	33	25	102
4	Chop	24	16	33	26	99
5	Truskavets	26	22	28	22	98
6	Netishyn	21	17	39	21	98
7	Yuzhne	21	21	37	18	97
8	Bolekhiv	26	15	35	20	96
9	Varash	20	19	36	21	96
10	Boryslav	25	19	30	20	94
11	Bilgorod-Dnistrovskyi	22	21	32	18	93
12	Slavutych	27	13	35	17	92
13	Lyman	23	17	33	18	91
14	Malyn	20	15	29	27	91
15	Berezan	21	16	33	21	91
16	Biliaivka	24	15	30	21	90
17	Nova Kahovka	24	11	32	23	90

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Rank	City	Block of indicators				Balancedness total points
		Ecological	Economic	Social	Accessibility	
18	Vasylkiv	22	12	29	26	89
19	Liubotyn	22	17	27	23	89
21	Yuzhnoukrainsk	19	17	32	19	87
22	Khust	27	13	30	16	86
23	Burshtyn	21	13	28	23	85
24	Podilsk	22	16	30	17	85
25	Slavuta	20	15	28	22	85
26	Volodymyr	20	13	33	18	84
27	Rzhyshchiv	24	11	29	20	84
28	Znamianka	22	14	30	18	84
29	Sambir	21	14	32	17	84
30	Kupiansk	21	15	30	18	84
31	Starokostiantyniv	20	17	29	18	84
32	Koziatyn	20	13	27	23	83
33	Beregove	19	16	27	20	82
34	Obukhiv	17	17	29	19	82
35	Myrgorod	20	15	24	23	82
36	Chuguiv	23	11	27	21	82
37	Fastiv	18	15	26	22	81
38	Dubno	16	12	28	25	81
39	Khmilnyk	19	13	25	23	80
40	Chortkiv	19	11	27	23	80
41	Novodnistrovsk	23	13	30	14	80

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Rank	City	Block of indicators				Balancedness total points
		Ecological	Economic	Social	Accessibility	
42	Ladyzhyn	17	17	28	17	79
43	Pershotravnevs'k	21	9	30	19	79
44	Balta	22	13	30	14	79
45	Ostrog	21	11	25	22	79
46	Kremenets	21	10	25	23	79
47	Shepetivka	20	13	26	20	79
48	Zolotonosha	24	10	26	19	79
49	Zhmerynka	16	13	28	21	78
50	Mogylyv-Podil's'kyi	17	12	28	21	78
51	Berezhany	22	10	22	24	78
52	Kaniv	22	13	25	18	78
53	Torets'k	23	11	28	15	77
54	Selydove	19	12	30	16	77
55	Ochakiv	22	13	27	15	77
56	Teplodar	20	11	28	18	77
57	Synelnykove	21	14	23	18	76
58	Vilnogir's'k	20	15	24	17	76
59	Dobropillia	13	14	31	18	76
60	Noviy Rozdil	19	10	26	21	76
61	Glukhiv	21	10	27	18	76
62	Izium	22	13	23	18	76
63	Pervomais'kyi	22	9	27	18	76
64	Gola Prystan	21	15	24	16	76

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Rank	City	Block of indicators				Balancedness total points
		Ecological	Economic	Social	Accessibility	
65	Zhovti Vody	21	11	22	21	75
66	Svitlovodsk	19	11	24	20	74
67	Lubny	17	10	25	22	74
68	Okhtyrka	21	10	25	18	74
69	Kahovka	18	11	25	20	74
70	Vatutine	21	10	22	21	74
71	Pereyaslav	17	12	27	17	73
72	Voznesensk	15	12	29	17	73
73	Romny	16	11	26	19	72
74	Lebedyn	18	9	21	24	72
75	Pokrov	19	14	25	13	71
76	Tokmak	19	10	22	18	69
77	Myrnohrad	14	10	25	19	68
78	Gadiach	18	11	24	15	68
79	Vudledar	10	11	30	16	67
80	Marganets	16	10	23	17	66
81	Novgorod-Siverskyi	18	11	20	17	66
82	Avdiyivka	13	11	23	18	65
83	Novogrodivka	14	10	21	20	65
84	Ternivka	8	11	26	16	61

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Regarding the indicators of the economic block, it can be noted that Yaremche is the absolute leader in Ukraine in terms of the indicator of total expenditures per person from the city budget—69,734 UAH in 2019. This is more than three times higher than in Kyiv.

In terms of the amount of tax on commercial real estate from legal entities per inhabitant, Yaremche ranks second in Ukraine (**Fig. 2.3.1.3**). By the way, among 6 cities led by that given indicator, five belong to the group of small cities. According to the value of average housing cost per square meter—UAH 31,631 Yaremche ranks second in Ukraine after the capital. Yaremche also has high indicators in the social block of indicators. Thus, the city ranks fourth in Ukraine in terms of healthcare expenditures per inhabitant (**Fig. 2.3.1.4**).

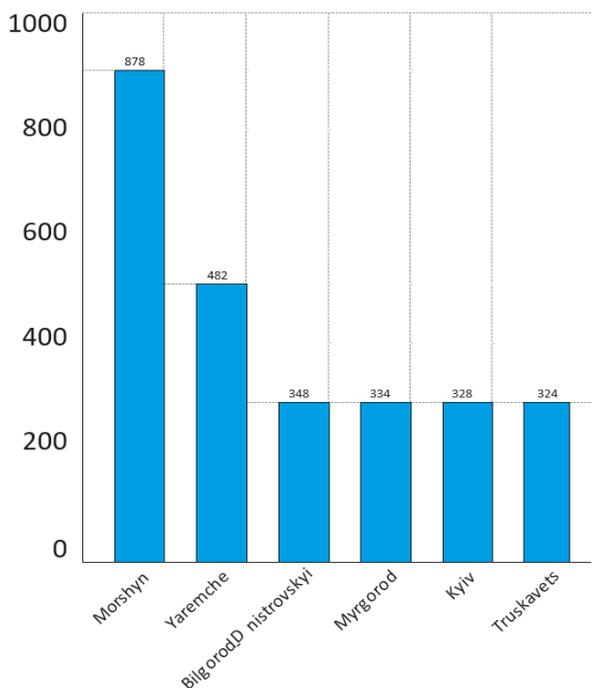


Fig. 2.3.1.3. Ukraine. Cities with the largest amount of tax on commercial real estate from legal entities UAH/person, 2019

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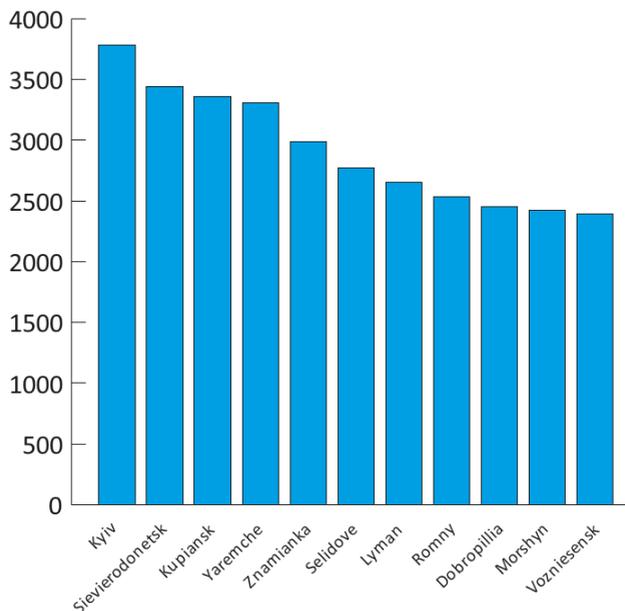


Fig. 2.3.1.4. Ukraine. Cities with the largest amount of health care expenditures per inhabitant UAH/person, 2019

Note that except Kyiv and Sievierodonetsk, all other cities included in **Figure 2.3.1.4** belong to the category of small ones.

Yaremche also leads in the amount of expenses for spiritual and physical development (277 UAH/person).

It ranks second in Ukraine after Chop in terms of education expenditure (13,462 UAH/person). At the same time, Chop and the towns which follow Yaremche—Lyman, Dobropillia, Bolekhiv, Balta, Sevidove are small towns.

Small towns also lead among cities with the largest expenditures on social protection. Yaremche ranks second among them (**Fig. 2.3.1.5**).

Among the indicators of the ecological block, we note the absolute leadership of Yaremche among other cities of Ukraine in terms of the share of green spaces, which is 80.5% of the city's area.

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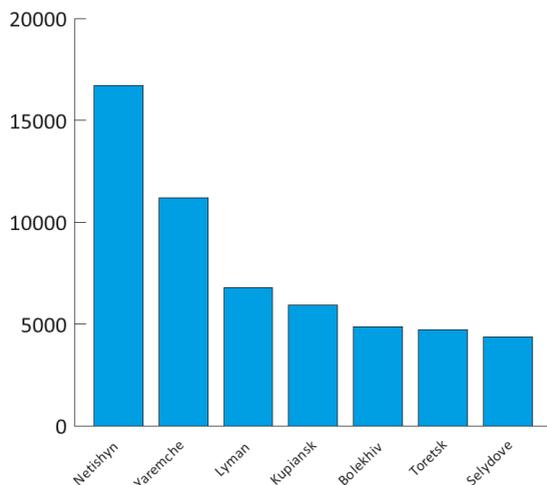


Fig. 2.3.1.5. Ukraine. Cities with the largest amount of expenditures on social security per inhabitant, UAH/person, 2019

The next five places in this rating are also occupied by small cities - Bolekhiv (65.7%), Slavutych (56.8), Slavuta (56.3), Truskavets (56.1).

As can be seen from **Table 2.3.1.3**, the worst indicators in terms of the level of balance have small cities, such as Ternivka, Novogrodivka, Avdiivka, Novgorod-Siverskyi, Marganets, Vugledar. Among the main causes of that are low indicators in environmental and economic blocks.

In particular, Avdiyivka ranks 10th (5,484.1 kg/person), Vugledar (10,610.4 kg/person)—eighth, and Ternivka (17,611.5 kg/person)—sixth among all Ukrainian cities.

As mentioned in section 1.5, due to the specifics of modern statistics in Ukraine, during the work it was not possible to use all of the indicators that were proposed for calculating the balancedness of cities in Ukraine.

In the future, the authors hope to improve and expand the list of indicators for assessing the level of balancedness in their development.

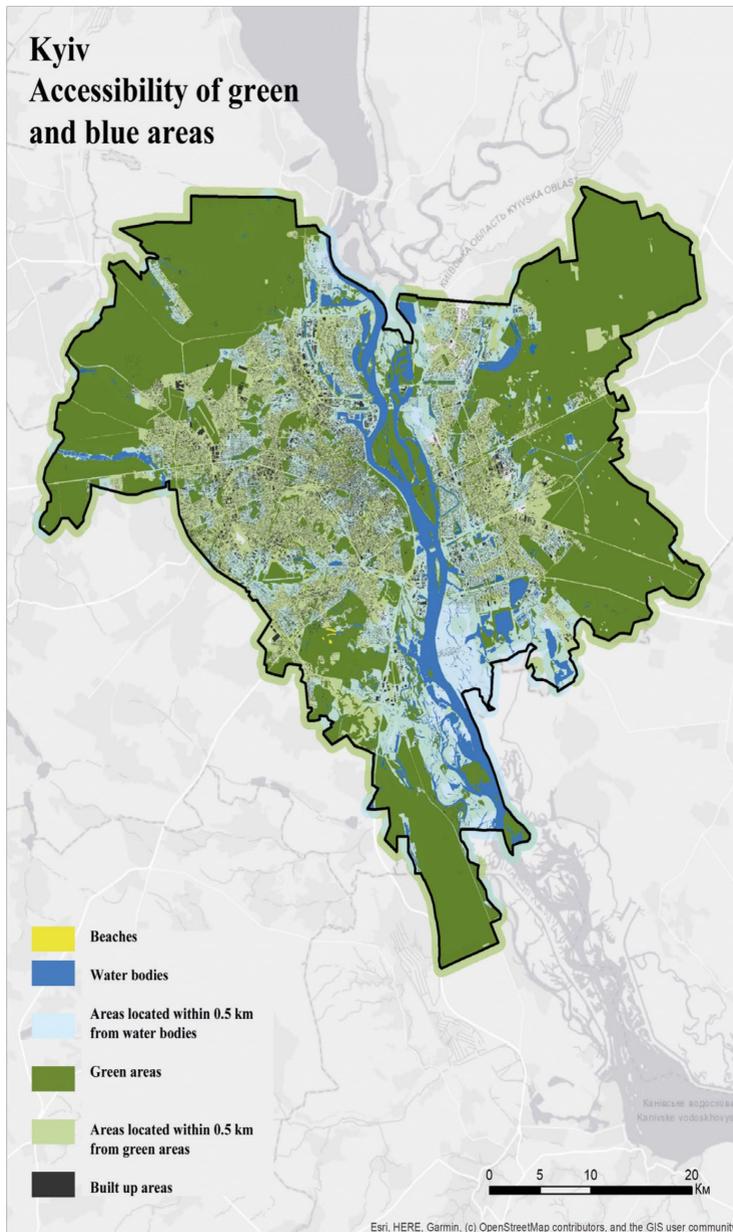


Fig. 2.3.1.6.

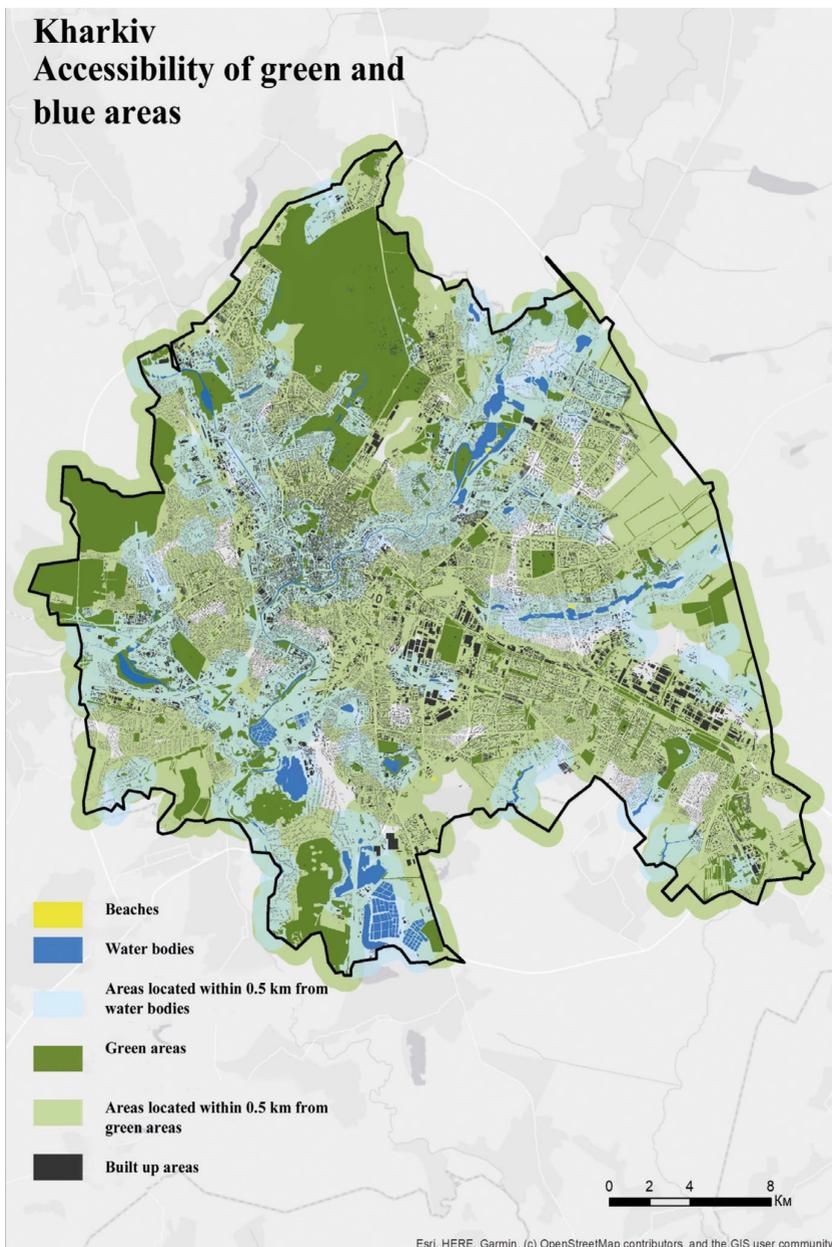


Fig. 2.3.1.7.

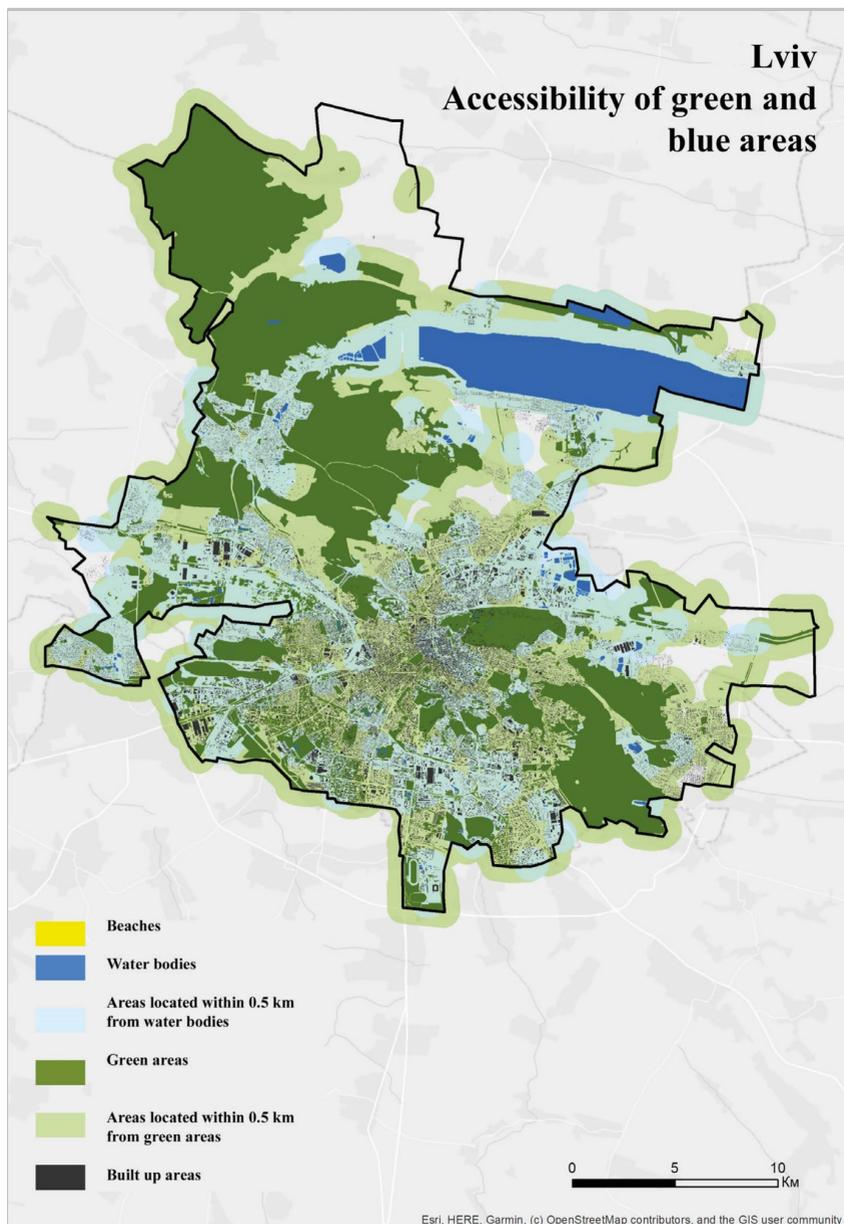


Fig. 2.3.1.8.

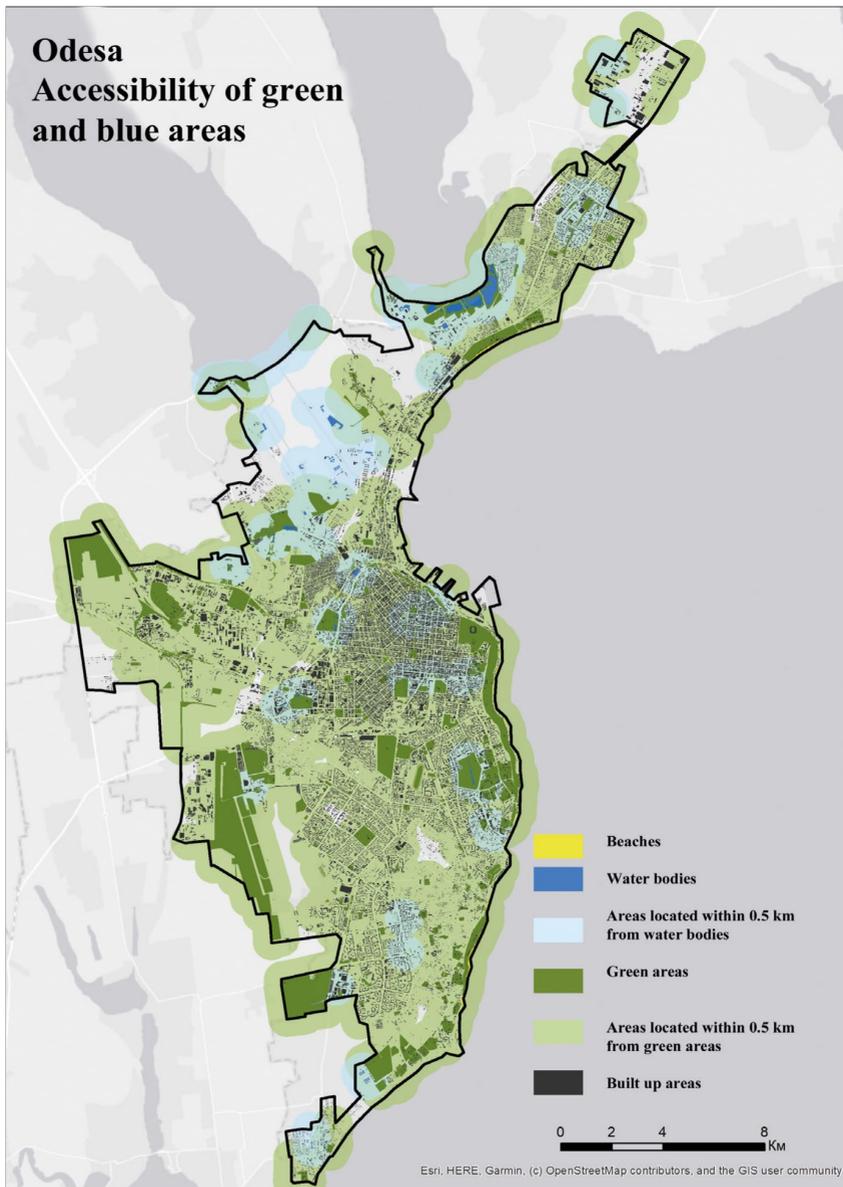


Fig. 2.3.1.9.

2.3.2 The perceptual component of the socio-geographic assessment of the Ukrainian cities' development balancedness

Geographers pay considerable attention to the problems of urban development, which is reflected in a number of recent works on this topic.^{99,100,101,102} At the same time, the multifaceted nature of urban balance, on the one hand, and the gaps in official statistics, on the other, determine the wide application of interdisciplinary methods and approaches, including sociological ones. Sociological methods of collecting empirical information are sufficiently substantiated not only in the fundamental works of sociologists but also in applied publications intended for representatives of other fields of knowledge.^{103, 104} In the course of evaluating the success of Ukrainian cities development, scientists and public organizations conducted many studies on the opinion of the city and united territorial communities population regarding the level of trust in the authorities,

⁹⁹ Lisovskyi, S. A., Maruniak, Eu. O., Gukalova, I. V., Mozgovyi, A. A., & Pokliatskyi, S. A. (2019). Inclusiveness and environmental priorities of urban development as components of quality of life. *Ukrainian geographical journal*, 2, 13–22. DOI: <https://doi.org/10.15407/ugz2019.02.013> [In Ukrainian].

¹⁰⁰ Maruniak, Eu. O., Lisovskyi, S. A., Pokliatskyi, S. A., Mozghovyi, A. A., Petrovska, A. O., & Rumiantseva, M. V. (2021). Development of the capital city through the prism of inclusiveness (a case of Kyiv). *Ukrainian geographical journal*, 1, 25–33. DOI: <https://doi.org/10.15407/ugz2021.01.025> [In Ukrainian].

¹⁰¹ Dronova, O. L., & Kononenko, O. Yu. (2019). Slavutych: formation of the urban resilience capacity in the conditions of current challenges and threats. *Ukrainian geographical journal*, 3, 22–36. DOI: <https://doi.org/10.15407/ugz2019.03.022> [In Ukrainian].

¹⁰² Pidgrushnyi, G. P., Mezentsev, K. V., Dudin, V. S., Provotar, N. I., & Bondar, V. V. (2020). Commercial suburbanization in Kyiv metropolitan region: uneven development and polycentricity. *Ukrainian geographical journal*, 4, 19–28. DOI: <https://doi.org/10.15407/ugz2020.04.019> [In Ukrainian].

¹⁰³ Bogdan, O. (2015). What is worth knowing about sociology and social research? A guide for civic activists and all those interested. *Kyiv*, 380 p. [In Ukrainian].

¹⁰⁴ Gomaniuk, M.A. (2013). Interviewer in a mass survey. Pocket textbook. *Kherson*, 84 p. [In Ukrainian]

assessing the availability and quality of services, in particular within the framework of the project “Participatory Democracy and Reasoned Decisions at the Local levels in Ukraine,” which is implemented by the Association of Ukraine Cities in cooperation with foreign agencies (these studies are presented on the Association’s official website). In recent years, the United Nations Development Program and the Global Environmental Fund have initiated a number of studies related to surveys of Ukraine’s population regarding their knowledge and attitude toward the implementation of the 2030 Sustainable Development Goals in Ukraine.¹⁰⁵

At the same time, the application of the spatial criterion of economic, social, ecological and cultural-spiritual problems differentiation the cities balanced development, where these problems are structured according to the geographical scale (global, national, local) and the locations of the respondents, has not been properly studied in Ukraine. There are few such comprehensive studies in the works of foreign researchers.^{106, 107, 108, 109, 110} The latter, analyzing the perceptual and behavioral features of city dwellers, focuses mainly on individual cities, so-called case studies—specific aspects of ensuring balanced urban development, selected social groups, etc.

¹⁰⁵ The goals of sustainable development: Ukraine. National report (2017). Kyiv, 176 p. [In Ukrainian].

¹⁰⁶ Hanák, T., Marović, I., & Aigel, P. (2015). Perception of Residential Environment in Cities: A Comparative Study. *Procedia Engineerin., Vol. 117*, 495–501
<https://doi.org/10.1016/j.proeng.2015.08.202>.

¹⁰⁷ Egger, S. (2006). Determining a sustainable city model. *Environmental Modelling & Software, 21*. 1235–1246.

¹⁰⁸ Rioux, L., & Werner, C. (2011) Residential satisfaction among aging people living in place. *Journal of Environmental Psychology. Vol. 31(2)*, 158–169.

¹⁰⁹ Black, P., Street, E. (2014). The Power of Perceptions: Exploring the Role of Urban Design in Cycling Behaviours and Healthy Ageing. *Transportation Research Procedia. Vol. 4*, 8–79. DOI: <https://doi.org/10.1016/j.trpro.2014.11.006>.

¹¹⁰ Topal, H. F., Hunt, D. V. L., Rogers, C. D. F. (2021). Sustainability Understanding and Behaviors across Urban Areas: A Case Study on Istanbul City. *Sustainability; 13(14)*, 7711. DOI: <https://doi.org/10.3390/su13147711>

To assess the perception of Ukraine residents on the issue of sustainable urban development, three types of questions were used in the questionnaire: closed, open, and questions designed to be evaluated based on a five-point scale. All of them are grouped into several blocks and, after verification during the survey of the model group, were distributed as shown in **Table 2.3.2.1**. The conducted work is focused on studying the respondents' opinions, and social perceptions of the balanced city development by certain focus groups (primarily students, teachers, scientists, and civil servants)—residents of cities from different regions of Ukraine.

Table 2.3.2.1. Theoretical and practical tasks of questionnaires on balanced development of the Ukrainian cities

Block of the questionnaire	Number of questions	Scientific and theoretical task	Practical task
Socio-demographic portrait of the respondent	6	Analysis of the condition and status of the respondents as a justification of the representativeness of the sample. Indication of a person's affiliation as a factor influencing the nature of answers.	Identification of the balanced development problems perception characteristics by age, gender, geographic and social status.
Concept of balanced urban development: global level	5	Determination of theoretical awareness level and practical familiarity of the respondents with the cities development problems in the world and with the concept of balanced development.	Establishing specific associations, determining the best countries to live, taking into account one's own mobility.

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Problems of the Ukrainian cities balanced development	11	Study of opinion about the best and worst cities in Ukraine in terms of living conditions with reference to the respondents' place of residence of and their experience of visiting certain cities	Rating of Ukrainian cities and problems of their economic, social, ecological cultural and spiritual development.
Economic, social, ecological, cultural and spiritual problems of a particular city development	7	Assessment of the significance of individual factors which ensure the development of a specific city (residence of the respondent)	Analysis of respondents' attitude to four blocks of their city of residence development problems: economic, social, ecological, cultural and spiritual

In order to obtain answers to the questions in the questionnaire, printed copies of the questionnaire were distributed through higher educational institutions, and public and scientific organizations in more than four dozen cities in Ukraine at the end of 2018—beginning of 2019, and a link to its Google form. In the end, only 630 questionnaires with complete answers from city residents were taken into account. The distribution of respondents turned out to be fairly uniform across the macro-regions of Ukraine, with a high proportion of those interviewed based on scientific and educational institutions. 38.5% of respondents were in the so-called “support points” of the survey in the macro-regions of Ukraine—Lviv, Kyiv, Zaporizhzhia, and Odesa.

A random probabilistic territorial sample was used during this study. At the same time, women showed themselves more actively—they made up two-thirds of the respondents, and only one-third—men. The respondents belong to different age categories, the majority are young people aged 16 to 35 (85%). From the point of view of urban environment study in the context of analysis of the problems and

advantages it offers for people's self-realization, the view of this most mobile and demanding group is particularly important.

The respondents are representatives of various types of activities: the majority of people (67%) are studying, a fifth are engaged in teaching and research activities, 5% are employees, the rest of the respondents are entrepreneurs, civil bureaucrats, and those who identified themselves as working in other fields.

About a third of the respondents have lived in the city of their current residence since birth, additionally the same number are temporarily staying there (studying or working), a fourth of the respondents moved to the city from rural areas, and about 15% moved from other cities of different sizes. Only a third of the respondents have lived in the city for less than one year.

In the "global" block of questions, the answers which indicate rather high level of respondents' awareness regarding the "Concept of sustainable development (Concept)" (with the exception of entrepreneurs and employees) are of the special interest, but at the same time, weak association of Rio de Janeiro with The UN Conference on Environment and Development (**Fig. 2.3.2.1**). Most of the respondents associated Rio de Janeiro with the carnival—there were more such answers in the southern than in the western cities of Ukraine. Respondents from western and central Ukrainian cities are generally more familiar with the concept of balanced development.

2.3 EVALUATION OF THE UKRAINIAN CITIES' SUSTAINABILITY

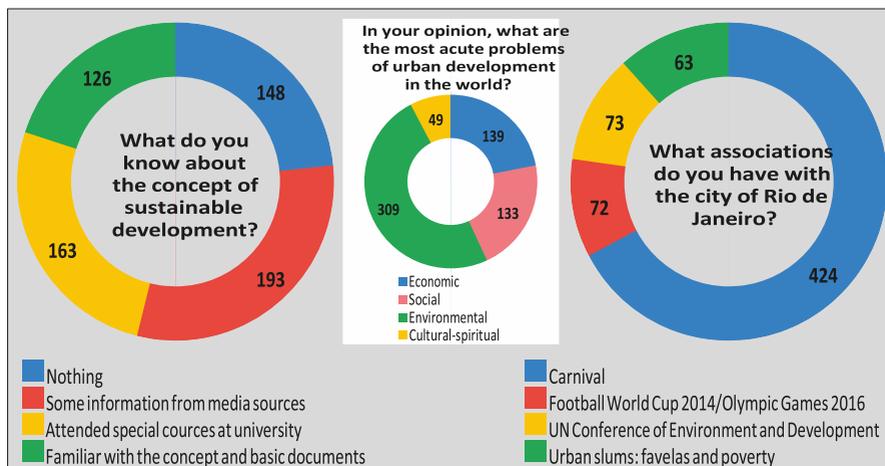


Fig. 2.3.2.1. Respondents' awareness of the balanced development issues (compiled by the authors).

This is indirectly confirmed by the answers regarding the acuteness of “urban” problems in the world. 49% of respondents ranked environmental problems of cities as priority, which has always been the main postulate of the concept, but, for example, civil servants and entrepreneurs believe that the most pressing problems of urban development are the economic ones. Men, in percentage terms, are more familiar with regulatory documents on sustainable development (25%), while women are less familiar with them (18%).

The first three countries with the best living conditions included Germany, the USA and Switzerland, for which 90% of votes were cast (**Fig. 2.3.2.2**).

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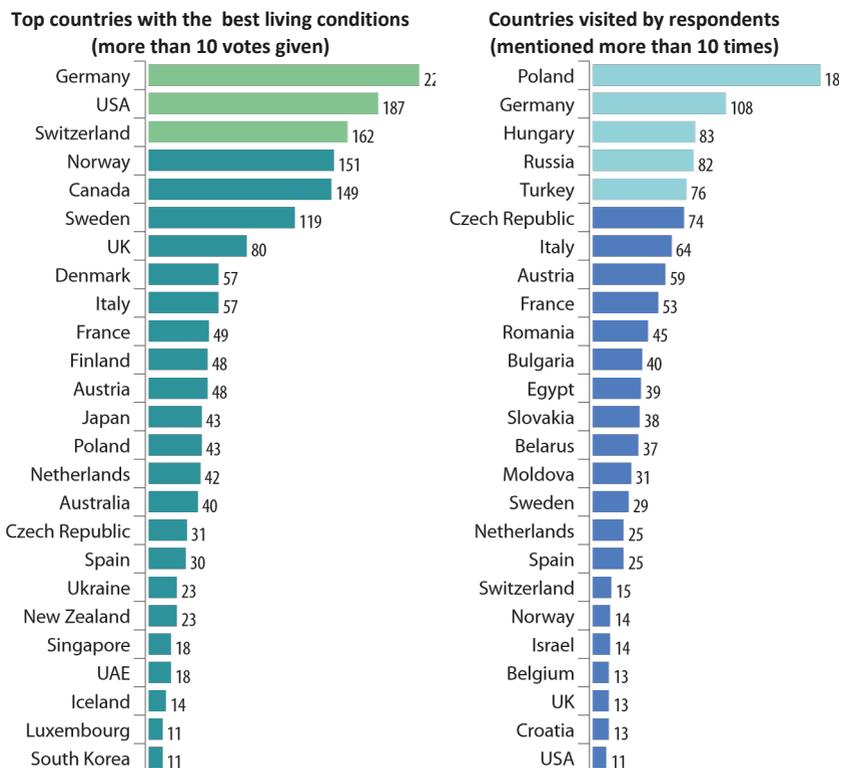


Fig. 2.3.2.2. Determination of countries with the best living conditions by respondents. Countries visited by respondents (mentioned more than 10 times) (compiled by authors).

Canada was also mentioned by residents of the West and South, and Norway by representatives of the Center. At the same time, from the mentioned above countries only Germany is among the five most visited countries, which was visited by 17% of respondents. Poland is in first place—it was indicated by 29%. The third, fourth, and fifth places in terms of visiting share Hungary, Russia, and Turkey, which are the immediate neighbors of Ukraine, regions of mass labor migration, family ties, and a popular tourist destination. Russia was named mainly by residents of the cities of the Center and East, and Hungary—by residents of the West.

Important stage of the research was determination of the respondents' opinion regarding selection of the most acute problem in development of Ukrainian cities in general and in cities of their residence in particular (**Fig. 2.3.2.3**). Here, as expected, economic problems occupied a top place and 57% of respondents voted for recognizing them as the main ones in Ukraine, while in their own city voted 43%. As in the case with assessment of the world's cities, respondents did not prioritize the problems of cultural and spiritual development, which is explained by socio-economic barriers.

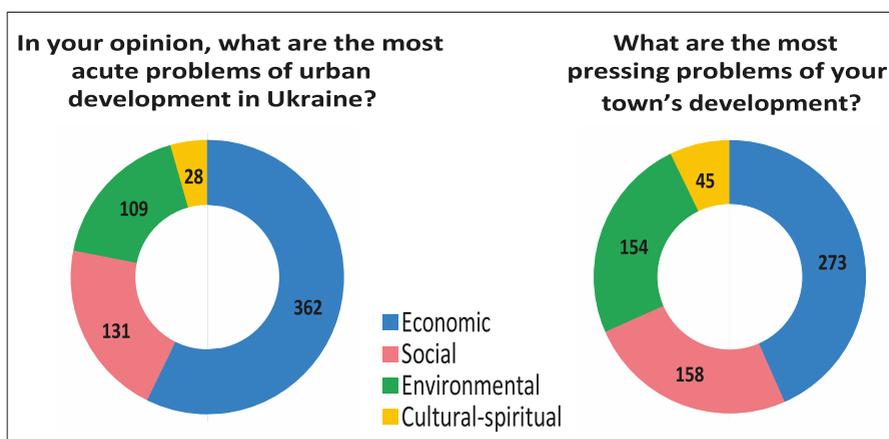


Fig. 2.3.2.3. Determination of the priority problems in balanced development of Ukrainian cities and the cities of respondents' residence (arranged by the authors)

The results of living conditions assessment in Ukraine cities (based on the respondents' arbitrary choice of three cities with the best economic, social, ecological conditions and cultural and spiritual living environment) are presented in **Fig. 2.3.2.4**.

Lviv is the only city present in the TOP-3 leaders in all components. The capital is expectedly not among the leaders in terms of ecological living conditions, Kharkiv is considered a city with good economic and social development conditions, Ivano-Frankivsk is associated with a

favorable ecological situation, and Odesa is seen as having an attractive cultural and spiritual environment.

Leaders in the assessment of economic, social, ecological conditions and cultural and spiritual habitat (more than 10 votes given)

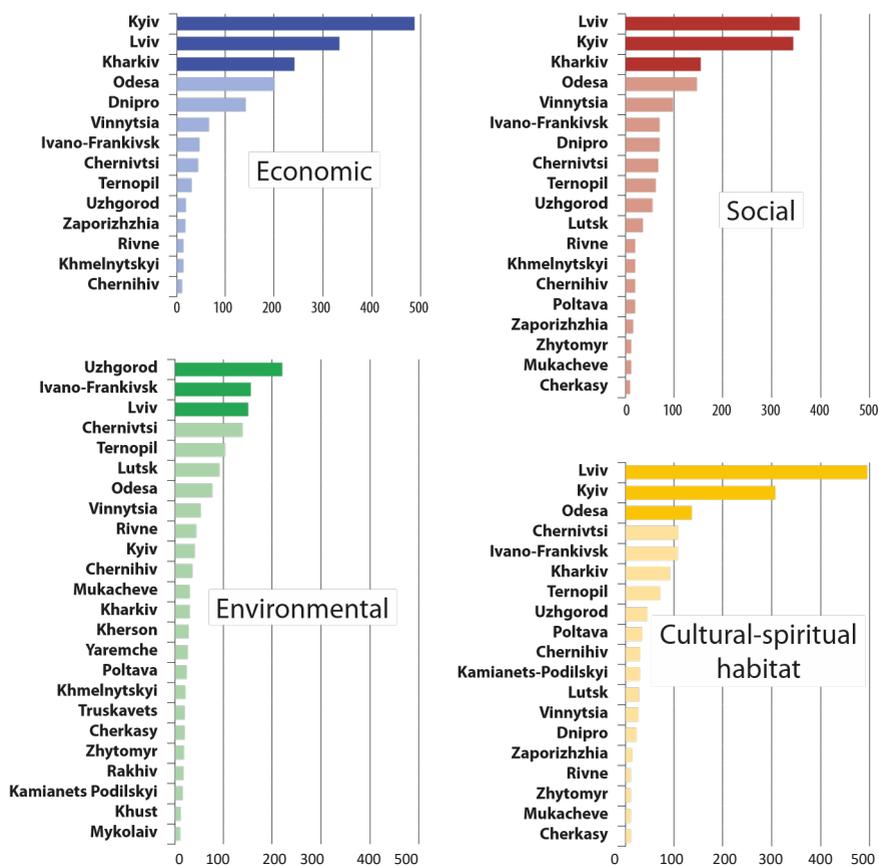


Fig. 2.3.2.4. Determination by respondents of Ukraine the cities with the best living conditions (arranged by the authors).

The fact that in the case of choosing the “most ecological” city, the respondents mentioned much more Ukrainian cities than, for example, when choosing the city with the best economic or social conditions—

the top three cities accounted for more than half of the mentions. Residents of the South added Odesa to the top three economically and socially attractive cities, while residents of the Center noted Vinnytsia as a socially attractive city. Chernivtsi was noted as an ecologically attractive city by representatives of all regions (except South).

It is expected that the cities of the East and Center of Ukraine were among outsiders in terms of living conditions (**Fig. 2.3.2.5**). Donetsk turned out to be a unanimous outsider, Luhansk was mentioned twice (when assessing economic and social conditions). Both cities are located in temporarily occupied territories and are characterized by a high level of social and economic instability, degradation of the humanitarian sphere. Therefore, the prospects for further development are seen by the respondents as extremely low.

Respondents demonstrated greater cohesion in identifying environmentally unfavorable cities, concentrated mainly in the East and Center of Ukraine. At the same time, when defining economic, social, cultural and spiritual troubles, opinions were divided within a wider list of cities. An important fact is also that the first three named best and worst cities on each of the four components of living conditions do not coincide, that means that the choice of respondents was not random.

In the fourth block of the questionnaire, the severity of the economic, social, ecological, cultural and spiritual development problems of the respondent's city of residence was evaluated on a 5-point scale (where 1 is the least serious and 5 the most severe) and within the framework of a list of 11 problems. When analyzing the answers, the average score for each of the questions was determined.

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Leaders in the assessment of economic, social, ecological conditions and cultural and spiritual habitat (more than 10 votes given)

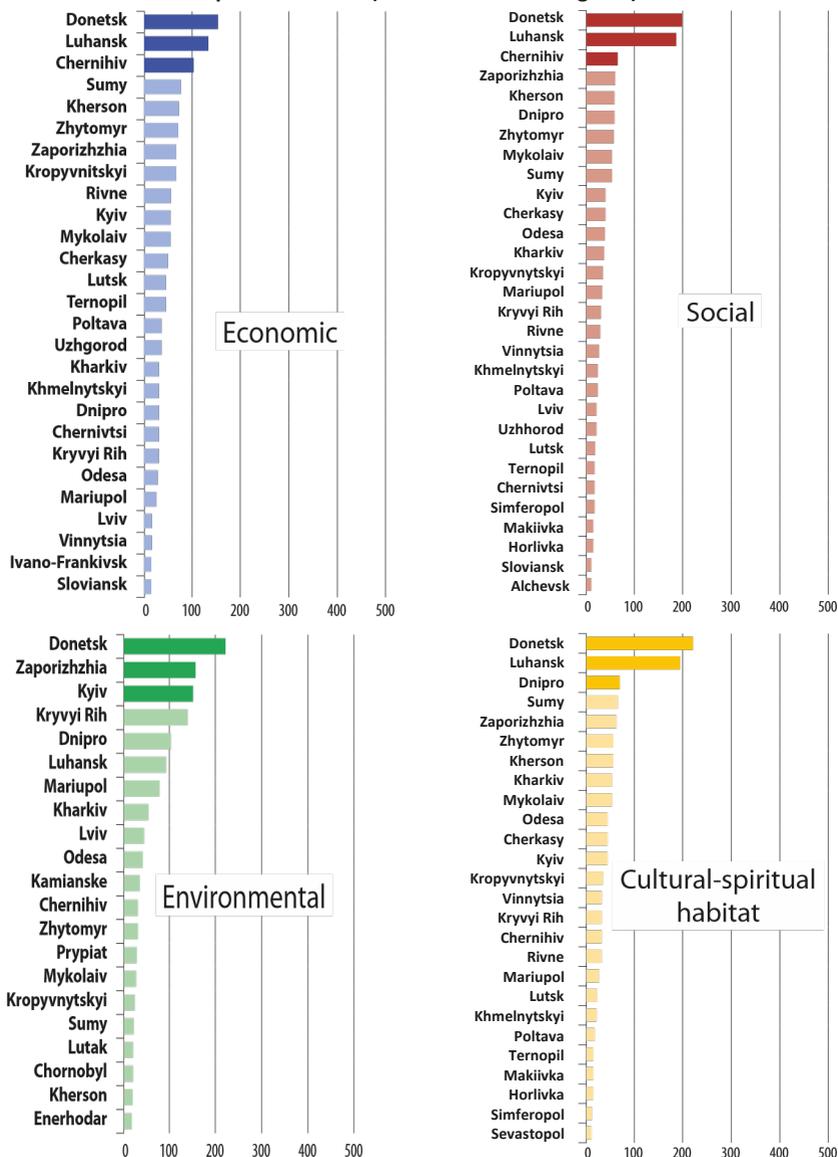


Fig. 2.3.2.5. Determination by respondents of Ukraine the cities with the worst living conditions (arranged by the authors).

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Evaluating the severity of economic development problems of their city of residence, the interviewees named high utility bills, the cost of buying or renting housing, no job in their profession, as well as low level of income among their priorities (**Fig. 2.3.2.6**). The problem of unemployment was also significant (it was singled out as the main by every fifth respondent), unfavorable investment climate (including ones associated with corruption and armed conflicts), high cost of transportation and lack of parking spaces.

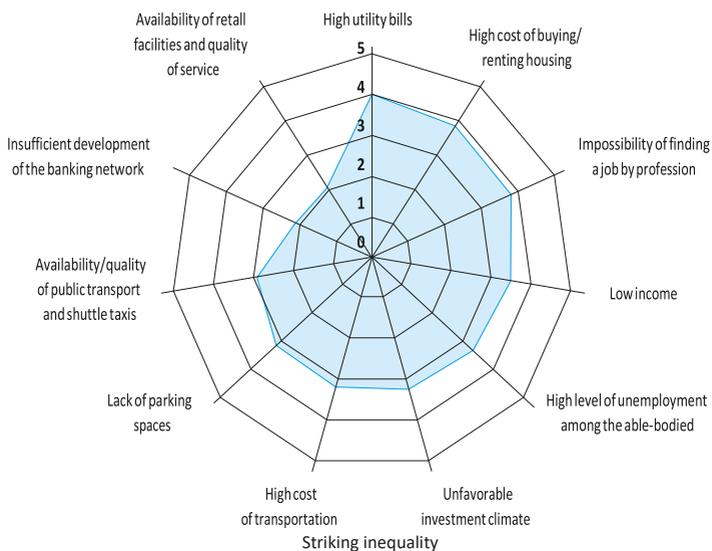


Fig. 2.3.2.6. The average score of respondents' assessed the severity of economic problems in the city of residence (compiled by the authors).

The last problem gets worse every year and is especially relevant for big cities. Such problems as: availability of public transport, level of banking system development, accessibility of trade establishments and quality of service turned out to be not important for the interviewees.

Among social problems, the problem of significant population incomes inequality was acute for all respondents, which more than a third of respondents from cities of all regions marked as the main one (**Fig. 2.3.2.7**).

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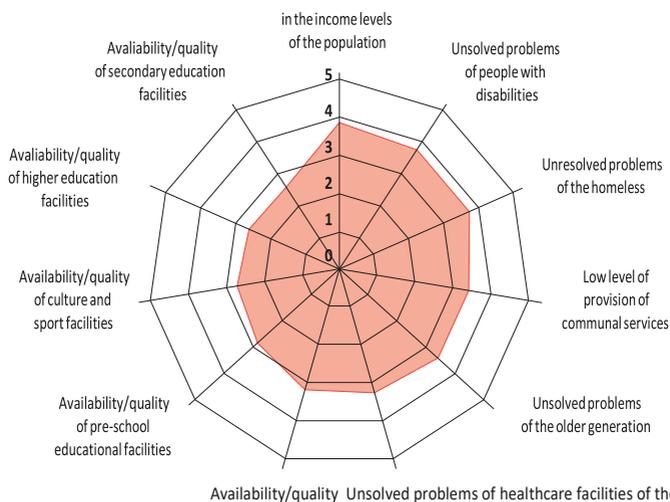


Fig. 2.3.2. The average score of the respondents' assessment of social problems severity in the city of residence (compiled by the authors).

It is interesting that the second most acute are the problems of the urban space inclusiveness, namely, unresolved problems for people with disabilities: 30% of respondents marked it as the most acute. Above average are the unresolved problems of vulnerable population groups and youth due to the lack of local support programs, as well as the low level of communal services provision, accessibility and quality of health care facilities. Accessibility and quality of services at educational institutions of various levels, culture and sports are recognized by the respondents as moderately acute problems.

As for environmental problems, the participants of the survey identified five of them among the urgent ones in terms of manifestation: pollution of drinking water and water in reservoirs, air pollution (two are especially important for residents in the East), care/maintenance of domestic and homeless animals, noise pollution and soil pollution (**Fig. 2.3.2.8**). A significantly smaller percentage of respondents are concerned about risks of various origins such as electromagnetic, light and radiation pollution of cities.

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It is indicative that the dishonesty of local elites, which should be the consolidating driving force of the balanced urban development policy, is highlighted among the acute cultural and spiritual problems of urban development (**Fig. 2.3.2.9.**). The next in line of priority problems are information pollution, a low culture of people's behavior in public places (residents of eastern cities recognized these two problems as priorities), the slow formation of the middle class, low level of public awareness in the area of natural resources use (culture of sustainable consumption in everyday life), as well as insufficient area of public spaces and their inaccessibility. All these problems can be attributed to the topic of comfort and safety of the urban environment. Other questions are below average in terms of their severity.

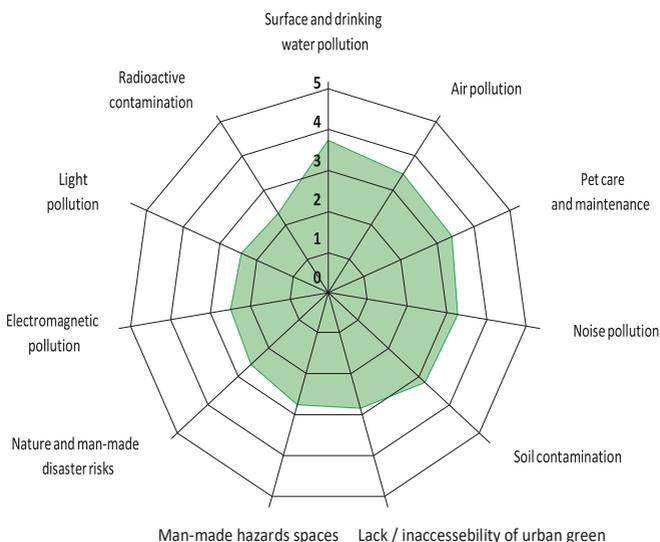


Fig. 2.3.2.8. The average score of the respondents' assessment of social problems severity in the city of residence (compiled by the authors).

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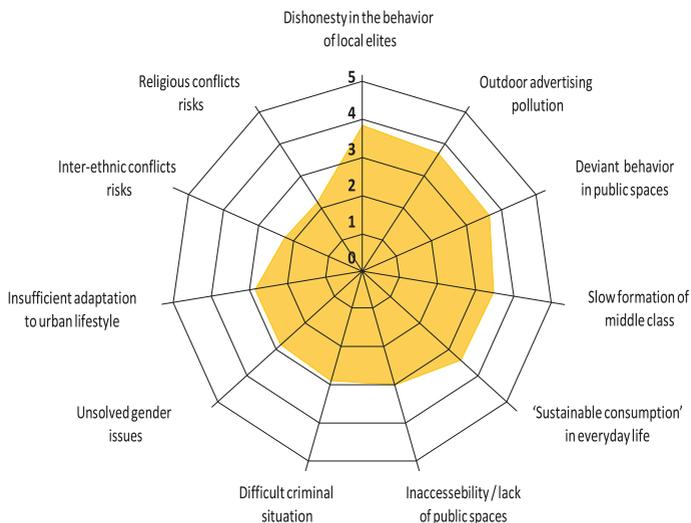


Fig. 2.3.2.9. The average respondents' assessment score of cultural and spiritual problems severity in the city of residence (compiled by the authors).

Calculation of the average score of the answers given for each block of problems shows that the most relevant problems for city dwellers are the problems arising in the social sphere, and then, in accordance with the decrease in importance, in the economic, cultural and spiritual, ecological spheres. This contradicts the assessments of the respondents at the beginning of the questionnaire, where the prioritization was different: economic, later social and then environmental problems and problems of culture and spiritual development of cities. Therefore, when the subject of evaluation is detailed, the anthropocentricity in the perception of reality increases, the environmental friendliness decreases.

Great interest also presents the distribution of responses by Ukraine macro-regions (**Fig. 2.3.2.10**).

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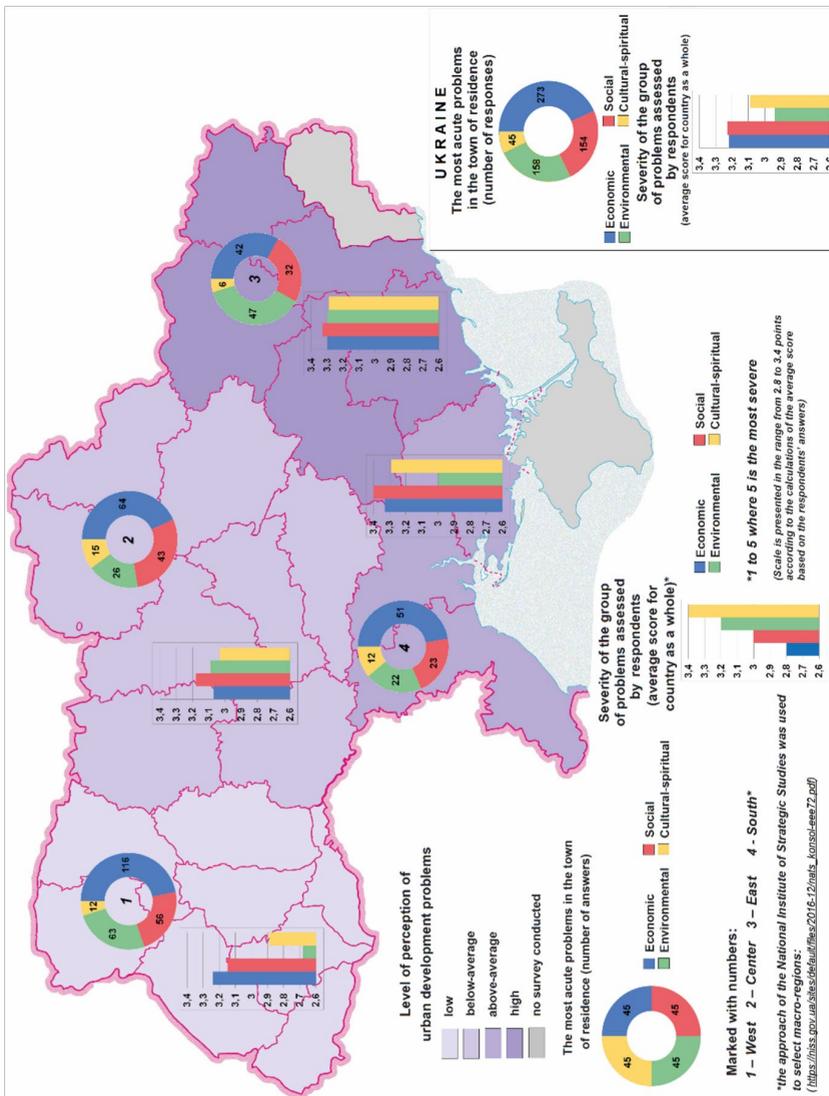


Fig. 2.3.2.10. Distribution of respondents' answers regarding the assessment of the most acute development problems of their city of residence in relation to the average scores of "weighted" assessments by the groups of detailed questions (compiled by the authors).

If, when identifying the most acute group of problems in the city of residence, the respondents recognized economic problems almost everywhere (except the East of Ukraine, where residents indicated environmental problems as a priority), then with a detailed assessment of each component of the problems according to four groups (economic, social, ecological, cultural and spiritual), the acuteness of the economic component is observed in the answers of residents of the West. On the other hand, in the Center, South and East, a group of social problems came to the top. At the same time, for example, the problem of the cultural and spiritual environment development, which was initially assessed as the least acute in all regions, changed in the rating—in the West and South to the third place, and in the Center—to the second place, while the acuteness of environmental problems was almost not perceived by the respondents in all regions except the East. We should also note that the general level of perception of the acuteness of all balanced urban development problems indicated in the questionnaire increases from West to East.

In order to measure the personalized level of perception of the city balanced development problems, the respondents were asked the question: “What is the priority for you when buying/renting housing, if you do not take into account the cost (status) and density of buildings?”. On a 5-point scale, the interviewees prioritized for themselves eight factors (**Fig. 2.3.2.11.**).

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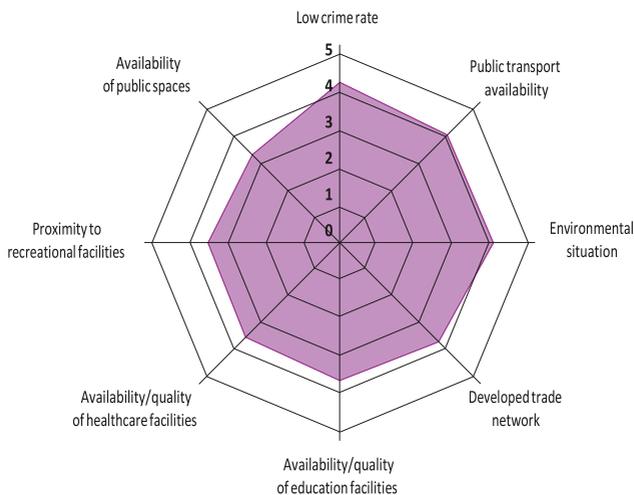


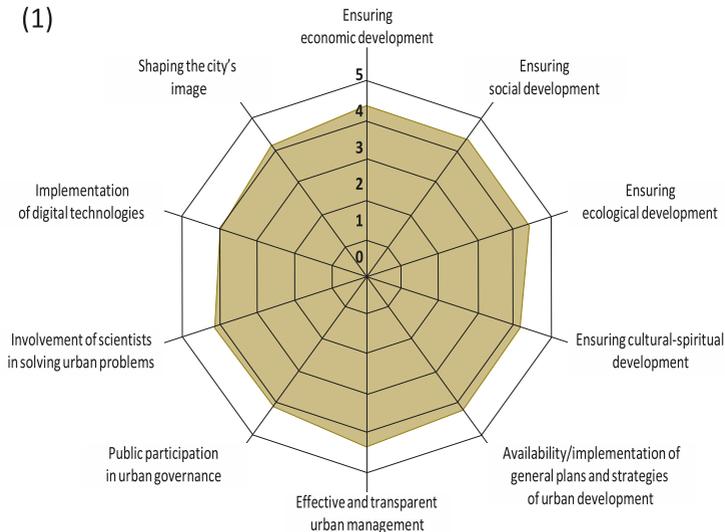
Fig. 2.3.2.11. Distribution of respondents' answers regarding the assessment of the most acute development problems of their city of residence in relation to the average scores of "weighted" assessments by the groups of detailed questions (compiled by the authors).

It should be noted the differences in the perception of the urban environment from the standpoint of collective or individual good. When determining the factors while choosing a place of residence, all the proposed factors, without exception, were given a value of "higher than average", which means that the respondents seriously consider the development level of the shopping network, availability of transport, and the environmental factor when it directly concerns them, while in the evaluation of priorities in the city in general, these factors were far from the first places.

The most important criteria when choosing one's own home include a low level of crime as a factor in preventing possible risks. In order to determine priorities in solving the balanced development problems in the city of residence and other cities of Ukraine, respondents were offered 10 options for solutions, which as a result were prioritized by the interviewees in a balanced and almost mirror-like manner (**Fig. 2.3.2.12**).

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(1)



(2)

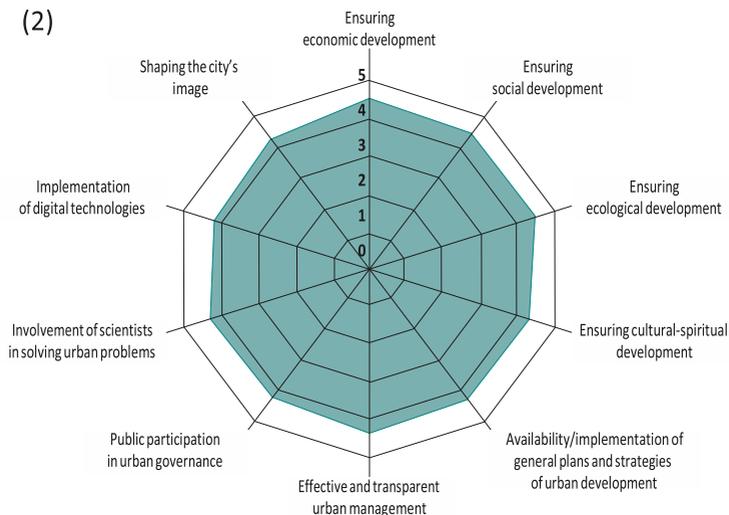


Fig. 2.3.2.12. Determining the priority when solving the balanced development problems of the city of residence (1) and the Ukraine cities (2) (compiled by the authors).

The respondents gave equal importance to all the proposed options, with measures for digital technologies introduction as the least

important. So, directly or indirectly, the respondents are aware of the content of the balance concept, which lies in the parity of various components. A possible additional explanation of such results may be the insufficient level of the respondents' awareness of the mechanisms of solving the urban development problems.

In general, in the process of research, it was established that questionnaires, as a method of primary information obtaining in order to assess the balance of urban development, are quite effective tool for identifying socio-geographic features of perceptual urban problems perception. The obtained results allow us to state that the majority of respondents have a satisfactory scientific understanding of the Balanced Urban Development Concept but are superficially familiar with its main provisions. It is noteworthy that the respondents' positive attitude to the advantages in the development of individual Ukrainian cities is correlated with their desire to live and work in these cities in the future. In particular, Lviv, Kyiv and Odesa were mentioned by respondents as having the best living conditions.

The conducted research made it possible to outline a range of problems which significantly reduce the quality of urban environment and are the factors increasing its conflict potential. Among the most acute economic problems, residents of cities, regardless of geographical location, noted high utility bills, which, in turn, is closely related to a complex of other issues—from the low level of income among the majority of the population to the inadequate quality of housing and communal services. A noticeable inequality in incomes is recognized by city dwellers as the biggest social challenge, which is the cause of social segregation, growth of poverty, etc. Urban residents of all Ukraine macro-regions recognized the low quality of drinking water and the extent of its pollution as a primary environmental problem. The problems listed above lead to further aggravation of the situation, which is a significant obstacle to the balanced development of Ukrainian cities. This requires not only appropriate response from local and central authorities, but also constant monitoring and control from civil society and the scientific expert environment.

2.3.3. Inclusiveness of urban development

Based on the approach of leaving no one behind, the 2030 Agenda for Sustainable Development emphasizes a holistic approach to achieving sustainable development for all. References to the problems of inclusive development are present in various sustainable development goals, in particular those related to education, economic growth and employment, overcoming inequality, development of cities and communities, as well as data collection and monitoring (**Fig. 2.3.3.1**).



Fig. 2.3.3.1. Goals of sustainable development with reference to the problems of Ukraine inclusive development. Compiled using.¹¹¹

The concept of “inclusiveness” and its antonym—“exclusivity” (disintegration) are quite broad. According to some authors, the appearance of these concepts in political discourse is largely determined by the Istanbul Declaration.¹¹² A similar situation and the transition to inclusiveness through reflection on the problem of exclusion, inequality and injustice is also noticeable in the scientific discourse. Since 1990s, the number of publications devoted to problems of inequality and poverty has been growing, and the European Commission in numerous reports draws attention to

¹¹¹ Disability Mainstreaming: The Sustainable Development Goals (2019). URL: <https://naiu.org.ua/wp-content/uploads/2019/05/Disability2.pdf> [In Ukrainian].

¹¹² New Urban Agenda. United Nations. 2017. URL: <https://habitat3.org/wp-content/uploads/NUA-Ukrainian.pdf>

updating the agenda for cities, including the concepts of inclusiveness and cohesion.¹¹³

It is obvious that urban environment, in addition to the main function of socio-economic and cultural-political space, should perform the function of overcoming inequality and obstacles while ensuring realization of the rights and freedoms of city residents, including those with special needs. In this sense, inclusive urban development essentially combines two concepts—"inclusion" and "accessibility." The first refers to changes in relations between people in the direction of a positive attitude to people with special needs and disabilities, and the second focuses on changing city environment and its infrastructure. Accessibility of public spaces and transport infrastructure, compliance with the principles of "environmental friendliness," opportunities to realize social, economic and cultural needs, taking into account interests of community, business, investors—all these provisions must be integrated in the development and implementation of city management plans and strategies. In this context, Ukrainian and other post-socialist cities are quite interesting objects for research. Their development during Soviet period took significantly into account social guidelines (moderate density and height of buildings, green areas, social infrastructure facilities, children playgrounds and sports facilities, etc.). However, a noticeable shortcoming of such planning approach was ignoring the interests of people with disabilities and low-mobility population groups, and subsequently, the non-compliance with the requirements of the post-industrial society. A new challenge for urban development in Ukraine has become the transformation taking place in the conditions of globalization, which are accompanied by the emergence of new elites and developers, "compression of space," and aggravation of conflicts regarding the use of certain territories. It is obvious that under the influence of international and

¹¹³ Bunnell, T. (2019). Inclusiveness in Urban Theory and Urban-Centred International Development Policy. *Journal of Regional and City Planning*. Vol. 30, 2, 89-101, August 2019. DOI: <https://doi.org/10.5614/jpwk.2019.30.2.1>.

European policies in the area of balanced development and corresponding changes in national legislation, attention to ensuring the inclusiveness, as a key characteristic of a modern Ukrainian city, will only grow.

The experience of developed countries has long proven the ineffectiveness of passive state policy in the area of social protection of the citizens with special needs, which is formed on the basis of compensatory costs—pensions, cash assistance, benefits, compensations, etc. Social support for the disabled in leading European countries has recently been characterized by the allocation of significant resources to create accessible living environment for people with disabilities.¹¹⁴ Focusing on the development of inclusive urban policy, development of inclusive practices and creation of the inclusive culture are very relevant directions for the EU countries, where about 100 million people have one or another form of disability—which is more than a fifth of the EU population.¹¹⁵ As the population continues to age, accessibility is more important than ever. Since 2010, the European Commission and the European Disability Forum have held the annual Access City Award competition, where prizes are awarded to cities with population of more than 50 thousand people which make the greatest efforts in organizing equal access to all resources they can provide. According to the terms of this competition, cities are evaluated by the level of residential buildings and public spaces improvement, accessibility of transport and public services. Since 2011, the winners have been successively: Avila (Spain), Salzburg (Austria), Berlin (Germany), Gothenburg (Sweden), Buros (Sweden), Milan (Italy), Chester (Great Britain), Lyon (France), Breda (The Netherlands),

¹¹⁴ Kravchenko, M. V. Actual problems of social protection of the disabled in Ukraine Kravchenko *State administration: theory and practice*. 2010. No. 2. URL: <http://academy.gov.ua/ej/ej12/txts/10kmvziu.pdf> [In Ukrainian].

¹¹⁵ Access City Award 2021: Examples of best practice in making EU cities more accessible making EU cities more accessible. URL: <https://op.europa.eu/en/publication-detail/-/publication/cdbbd822-be90-11eb-a925-01aa75ed71a1/language-en>

Warsaw (Poland) and Jönköping (Sweden). All listed above cities share two clear common features. The first is strong and sustained commitment at the political level to ensure habitat availability. The second is real involvement of the city and organizations of disabled and elderly people in setting the priorities for development of public spaces and monitoring their implementation (participation). Wide spread stereotypes regarding the barrier-free policy are those that proper conditions and measures to ensure it can be implemented only: a) in affluent countries/communities, or b) in relatively low-urbanized cities, where there is free physical space for reconstruction/construction of new infrastructure, adapted for the needs of a wide range of people. Nevertheless, in 2020, the first place and the EU award “Accessible City” was won by Warsaw—a large (over 1.7 million people) post-socialist city, which, in the presence of the appropriate political will, realistic strategy, financial and organizational resources, proved to be able to implement advanced practices of infrastructural inclusiveness.¹¹⁶

In Ukrainian cities, there is a complex of challenges associated with inclusive development problems regarding the possibility of full, barrier-free access to public spaces, access to various services, use of public transport and transport infrastructure, etc. It should be noted that all residents of the inclusive city can be considered as the subjects, without exception, who, in the absence of disabilities or physical limitations, may experience difficulties with independent movement in the city at certain moments of their lives, and therefore need accessible and convenient infrastructure.

Studying the needs and interests of the most vulnerable categories of the population (reduced mobility groups: people with disabilities, the elderly, children, who together make up more than a third of the population in Ukraine), their involvement in decision-making, defining

¹¹⁶ Zubchenko, S. O., Kaplan, Yu. B., & Tyshchenko, Yu. A. (2020). Creating a barrier-free environment and social inclusion: world experience for Ukraine: analyst. add. Kyiv: *NISD*. 24 p. [In Ukrainian].

the programs for improvement of public space and evaluation of existing programs are being implemented slowly, but at different levels.

There are many examples of infrastructure development in the context of universal design, transformation of public transport, changes in the standards of roads and public buildings, but most of them are unsystematic and fragmented. For example, in Kyiv, according to statistics, 50% of people, due to inadequate physical environment, do not have absolute mobility.¹¹⁷ With the development of united territorial communities, such practices have become more frequent, because cities and their residents have greater influence on the priority of directing funds from local budgets.

Since 2019, the public organization *Dostupno.UA* launched the “Toaster Accessibility Rating of Ukrainian Cities”—a project, with support of the Human Rights Fund of the Kingdom of Netherlands Embassy in Ukraine. According to the developed verification methodology based on state building regulations, the researchers verified cities with population of up to 350,000 inhabitants.¹¹⁸ The inspection took place within a radius of 500 m from the point considered to be the center of the city, usually the city council, and the city infrastructure (overpasses, sidewalks, bicycle paths), important locations (centers of administrative services provision, central hospitals, pharmacies, public catering establishments, cinemas, branches of Ukrposhta and banks, etc.) as well as public transport were inspected. As of mid-2020, the rating covered 13 cities of Ukraine, which was led by Chernihiv with an overall accessibility level of 19.46%.¹¹⁹ It was followed by: Vinnytsia (16.15%), Cherkasy (16.02%),

¹¹⁷ Universal Design: buildings should be convenient for the end user. URL: <https://www.ua.undp.org/content/ukraine/uk/home/presscenter/articles/2014/09/23/-html> [In Ukrainian].

¹¹⁸ Shchebetiuk Accessibility of Ukrainian cities: who is on top? URL: https://24tv.ua/dostupnist-ukrayinskih-mist-hto-vershini-novini-sumi_n1380651 [In Ukrainian].

¹¹⁹ Chernihiv topped the rating of affordable cities in Ukraine. URL: <https://zmina.info/news/chernihiv-ocholyv-rejtyng-dostupnyh-mist-ukrayiny/> [In Ukrainian].

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Rivne (15.79%), Zhytomyr (15.38%), Sumy (14.75%), Poltava (14.48 %), Chernivtsi (10.32%), Ivano-Frankivsk (9.70%), Kamianets-Podilskyi (6.38%), Ternopil (6.38%), Mykolaiv (6.17%) and Kherson (5.59%). Each of the cities had its own advantages in building one or another component of inclusiveness. In particular, Ivano-Frankivsk demonstrated relatively high level of achievements in the development of convenient public transport, Vinnytsia is distinguished by availability of pharmacies, Chernihiv has high level of health centers availability, etc. Kherson occupies the last place in various categories (accessibility of intersections and crossings, TsNAP, bicycle paths). Later, inspections of individual city locations turned into a map of their accessibility [¹²⁰], also TosMap mobile applications were launched on the Android and iOS platforms, which can help people from groups with limited mobility find a convenient for them location and lay a route there. There are already 23 Ukrainian cities on the map and it includes several types of locations:

- entertainment and business locations: cafes, restaurants, cinemas, banks, pharmacies;
- administrative locations: city councils, regional state administrations, courts, administrative service centers;
- and public spaces: museums, parks, libraries.

Local features of the urban development inclusiveness largely depend on the conditions of integrated urban development framework, which provides for simultaneous and fair consideration of the needs and interests relevant to the city and its residents. For example, the experience of individual capital city districts research on the subject of space accessibility showed the existence of significant “framework” advantages in case of Kyiv over other Ukraine cities in terms of the range and number of targeted development strategies and programs which cover problems relevant to inclusiveness in the areas of urban planning, environmental, cultural, educational, transport and infrastructural activities, sizable city budget and presence of potential

¹²⁰ Availability map. URL: <https://map.dostupno.ua/map/> [In Ukrainian].

investors in urban development projects, public, research and international organizations that take care of issues of spatial development and implement European practices of inclusiveness. In 2020, a survey of Rusanivka residents, a well-known left-bank compact and quite green neighborhood of Kyiv, which has been actively renovated in recent years, showed moderate satisfaction of residents with provision of public trade and catering facilities, secondary and preschool education, walking accessibility to parks and squares (77% respondents), children (56%) and sports (48%) playgrounds, as well as surface pedestrian crossings, traffic lights, lighting, accessibility and improvement of public transport stops. At the same time, 68% of residents negatively assessed the lack of Braille transliteration, almost 35% of respondents noted the lack of sound signals at pedestrian crossings, and 30%—the almost complete absence of ramps (<10°).

Indicators of social infrastructure development were rated the worst, especially in terms of public restrooms availability, including for people with disabilities, shortage of parking spaces, including for people with limited physical abilities, lack of areas for walking pets, etc.¹²¹ The latest problems are typical in most microdistricts of the capital, as well as other large cities of Ukraine. Many closed courtyards and public spaces, unauthorized fences and regulated limited access, lack of public infrastructure (benches, playgrounds, etc.) become typical negative features of the central areas in many cities. For example, the city of Odesa with population of one million people has 1 seat per 5.8 m² in the central areas (for comparison: in the center of Stockholm, 1 place for 800 m², in Copenhagen—for 830 m²). On the other hand, unsatisfactory level of inclusion of pedestrian space is compensated in this city by the presence of a unique inclusive beach for the disabled equipped with ramps and a ramp to the sea, by

¹²¹ Maruniak, Eu. O., Lisovskyi, S. A., Pokliatskyi, S. A., Mozghovyi, A. A., Petrovska, A. O., & Rumiantseva, M.V. (2021). Development of the capital city through the prism of inclusiveness (a case of Kyiv). *Ukrainian geographical journal*, 1, 25–33. DOI: <https://doi.org/10.15407/ugz2021.01.025> [In Ukrainian].

presence of the “Health Route,” laid back in the 1970s, where electrical cars and bicycles traffic is currently allowed.¹²²

In general, in most large cities in Ukraine there are all problems of inclusive “underdevelopment” and traffic overload, all cities have a common weakness—minibuses, which maintain monopoly in passenger transportation and are mostly inaccessible to groups with limited mobility. Although the new state building regulations were adopted, which require the creation of a barrier-free space,¹²³ in particular during the reconstruction of many infrastructure facilities, they continue to be violated.

¹²² Workshop “Odesa Slopes.” Agents of change. URL: <http://a3.kyiv.ua/projects/kandinsky/> [In Ukrainian].

¹²³ Inclusiveness of buildings and structures: Basic provisions. *DBN V.2.2-40:2018*. Kyiv: Ministry of Regional Development, 2018. 64 p. URL: <https://www.minregion.gov.ua/wp-content/uploads/2019/01/V2240-2018.pdf> [In Ukrainian].

2.4. Questionnaires and indicative assessment: comparison, advantages and disadvantages

In general, as the experience of the research showed, the combination of questionnaires and indicative assessment of the cities balanced development, was useful and allowed a more complete and versatile assessment of individual aspects of this issue.

Table 2.4.1. Comparison of survey results and indicative assessment of the Ukrainian cities development sustainability

General assessment of attractiveness/sustainability			
Questionnaire		Indicative assessment	
City	Number of answers	City	Points
Lviv	386	Kyiv	128
Kyiv	280	Ternopil	124
Odessa	211	Uzhgorod	115
Kharkiv	125	Lviv	113
General assessment of attractiveness/sustainability			
Questionnaire		Indicative assessment	
Chernivtsi	103	Kherson	112
Ivano-Frankivsk	83	Dnipro	110
Dnipro	64	Khmelnitskiy	110
Uzhgorod	61	Vinnytsia	109
Ternopil	61	Poltava	108
Vinnytsia	53	Lutsk	106

2.4. QUESTIONNAIRES AND INDICATIVE ASSESSMENT COMPARISON, ADVANTAGES AND DISADVANTAGES

In general, it is possible to point a fairly high degree of the obtained results consistency when using the specified methods.

Particularly, according to the general evaluation of balancedness, it was the same for 6 cities within the first ten. According to evaluation of ecological conditions—for five cities, and according to evaluations of the economic and social blocs it coincided for three cities.

However, there are some fundamental differences in the results. First of all, it should be noted that the respondents singled out only large cities among the leaders, and the comparison of the indicative assessment results was performed according to this group.

It is also worth pointing the significant concentration of respondents' answers on several cities, regarding which a certain established public opinion has formed regarding their ecological, social, economic attractiveness, etc.

In general, each of the methods has their own advantages and disadvantages in terms of individual aspects, a comparison of individual aspects of both methods is presented in **Table 2.4.2**.

Table 2.4.2. Questionnaires and indicative assessment: advantages and disadvantages

Characteristics of research aspects	Questionnaire/survey	Indicative assessment
Number of indicators, spectrum of assessments	Theoretically, the range of questions can be unlimited and deal with any aspect related to the cities balancedness.	The number of indicators is limited by the available statistical database, the possibilities of obtaining and processing data of the National Health Service.
Comprehensiveness/ Systematic nature	Largely depends on the organization, preparation and performance of the survey, as well as on how content filled the questions are. At the same time, the quality of the results reflects the level of familiarity with the issues of balanced development, their awareness of the situation.	Depends on the developed methodology, research algorithm, and, to a large extent, on the ability to obtain statistical values of the indicators selected for evaluation

2.4. QUESTIONNAIRES AND INDICATIVE ASSESSMENT COMPARISON,
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Accuracy	The results obtained in the course of the study cannot be considered as having a high level of accuracy, since the majority of respondents are not specialists in the research issues	Research results have a fairly high level of accuracy. However, this level is affected by the relevance and completeness of the applied indicators.
Timeliness	If there is a developed and tested methodology, it can be carried out promptly. The obtained results can also be processed and interpreted quickly	If there is a developed and tested methodology, it can be carried out promptly. The obtained results can also be processed and interpreted quickly. However, such factors as periodic nature and terms of updating statistical data affect the ability to carry out the research promptly.
Complete assessment, coverage of the problem/process/ phenomenon essence	The respondents' evaluations, as the results of the study showed, cannot accurately cover problems related not only to their city of residence, cities of the region, other regions, the country as a whole or global urbanization development problems. Respondents perceive the situation in their city rather critically and acutely, have a certain tendency to idealize the situation in cities	When unified methodology and statistics are available, it can be carried out for different territories, at different levels—global, national and regional.
Objectivity	Respondents' assessments are subjective which is quite logical.	The results depend on the excellence of the research methodology
Assessment of the process dynamics	Subjective, in general, respondents, especially older ones, tend to evaluate the past more positively, and are overly critical of current trends.	It can be done objectively. The value of the estimated process dynamics period depends largely on

2.4. QUESTIONNAIRES AND INDICATIVE ASSESSMENT COMPARISON,
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Continuity/consistency	They can be carried out on an ongoing basis, which will make it possible to evaluate changes in public opinion and public reaction to the processes taking place in cities.	They can be carried out on an ongoing basis, which will make it possible to assess the Ukrainian cities development dynamics and level of their balancedness as well as to monitor urbanization processes
Inclusiveness	Questionnaires are important from the point of view of taking into account the opinions and needs of different population categories and groups, depending on their social status, age, professional affiliation, gender, education, place of origin, preferences, etc. This is a mandatory condition for their consideration and to further ensure the principle of inclusiveness in the process of planning and development of cities.	It requires separate additional research, elaboration and development of new state building regulations etc., which is especially important for the implementation of the «new urbanism» principles.
Participation	The survey contributes to implementation of the principle of participation in the management of the of urban development process, ensuring its balancedness.	Indicative evaluation can allow to detect some indicators, which reflect certain aspects of participation, and take them into account.

3 DRIVING FORCES OF UKRAINIAN CITIES TRANSITION TO SUSTAINABLE DEVELOPMENT

3.1 Shaping the urban development policy as a component of the sustainable spatial development of the country. Implementation of the “new urbanism” principles in the management of urban development

3.1.1 Shaping the urban development policy as a component of the sustainable spatial development of the country.

The sustainable development of cities is one of the most important conditions for ensuring sustainable spatial development of the country and its regions. In Ukraine, issues of spatial development and optimization of spatial policy are becoming more and more relevant every year.

The state has formed and is constantly improving the normative and legal framework that regulates the legal aspects of spatial policy implementation. Ukraine actively studies and borrows international experience in this field. This is done through the implementation of joint projects, adaptation of planning practices, and direct implementation of international legislation into Ukrainian legislation.

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For Ukraine, an urgent task is to achieve such spatial development priorities in particular as improving the quality of management and territorial planning, reducing the negative impact on the natural environment, considering the fact that problems of regulation and management go together with the need to improve economic and social indicators.¹²⁴

It is important for every state to have a spatial development strategy.¹²⁵ For European countries, such strategy is a part of the general strategy of the European Union spatial development, set by the CEMAT Guidelines,¹²⁶ Directives of the European Parliament, and other documents. For our country, such a document is The general planning scheme of the Ukraine territory, approved by the relevant law.¹²⁷

Among the main documents regulating spatial development in Ukraine, we should mention, first of all, the “State Regional Development

Strategy for 2021–2027,”¹²⁸ approved by Resolution No. 695 of the Ukraine Cabinet of Ministers dated August 5, 2020.

This Strategy defines the general vector of the region’s sustainable development and was designed in accordance with the Sustainable Development Goals of Ukraine until 2030, approved by the Decree of the President of Ukraine No. 722 dated September 30, 2019. It is the main planning document for the implementation of sectoral development strategies, coordination of state policy in various areas,

¹²⁴ Rudenko, L., Lisovsky, S., & Maruniak, E. (2020). Dilemmas of regional development in Ukraine. *Ukrainian Geographical Journal*, No. 3.

¹²⁵ Paleha, Yu. M. (2020). New edition of the general planning scheme of the territory of Ukraine—the strategy of Ukraine’s integration into the European space. *Ukrainian Geographical Journal*. No. 1, 7–15.

¹²⁶ Guiding principles of sustainable spatial development of the European continent. Translation and reproduction with the assistance of the project “Innovative regions of SEMAT (GTZ, Germany)”, 2007. 40 p.

¹²⁷ *On the General Planning Scheme of the Territory of Ukraine : Law of Ukraine. News from Verkhovna Rada of Ukraine. 2002. No. 30: 204.*

¹²⁸ State regional development strategy for 2021–2027. [Electronic resource]. URL: <https://zakon.rada.gov.ua/laws/show/695-2020-%D0%BF#Text>

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achieving effectiveness of the state resources use in territorial communities and regions in the interests of people, unity of the state, sustainable development of historical settlements and preservation of the traditional character of the historical environment, preservation of the natural environment and sustainable use of natural resources for the current and future generations of Ukrainians.

One of the state's regional policy priorities is the development of economic, infrastructural, and socio-cultural connectivity and integration at the national, regional, and local levels. This is fundamentally important for ensuring the integrated spatial development of Ukraine and its regions, as well as the formation of the urban development policy as a component of the spatial development of the country as a whole.

The Strategy differs from previous similar documents in that it singles out certain functional types of territories, the development of which requires special attention from the state and the use of special mechanisms and tools to stimulate their development. In particular, they include urban agglomerations, centers of economic development (which mainly include cities {large, medium, and small} and urban-type settlements), and monofunctional cities. All the above at least indicates the declaration of coordinated urban development planning and spatial development of the country as a whole.

The strategy contains three strategic objectives. The first of them is the "Formation of a unified state in social, humanitarian, economic, ecological, security and spatial dimensions." To achieve that, it is required the implementation of certain operational goals, directions, and tasks. A significant number of them relate to issues of urban development, in particular:

Operational goal 1 "Stimulation of economic development centers (agglomerations, cities)"

Tasks in the direction of "Strengthening the integrating role of agglomerations and large cities"

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1. Creation of the legislative basis for the functioning and development of agglomerations and ensuring balanced spatial development of the territories included in them.

2. Providing comprehensive support for the reindustrialization of agglomerations and large cities based on innovations (techniques and technologies) of the higher technological institutions, formation of urban and regional economic clusters, aimed at the effective use of the territory's resources, its comprehensive development, and formation of the state innovative economy.

3. Ensuring the use of the higher education institutions' potential for innovative development of the agglomerations.

4. Formation of powerful scientific technological and medical centers in agglomerations and large cities using the potential of higher education institutions, research institutes, and businesses with the development of the appropriate infrastructure.

5. Providing support for the creation of IT clusters in agglomerations and large cities which have the necessary potential and infrastructure.

6. Ensuring the organization of suburban transport in agglomerations, large cities, and adjacent territories, taking into account pendulum migration.

7. Implementation of strategic planning for the development of transport systems in agglomerations and large cities, taking into account the principles of sustainable mobility.

8. Formation of the effective network of preschool, out-of-school education institutions, and general secondary education, particularly through the introduction of specialized secondary education, which will provide lyceums with academic and professional orientation and promote the development of private preschool educational institutions.

9. Promotion of infrastructure modernization in large cities and implementation of effective resource management.

10. Providing support for the waste processing and utilization industry, which uses advanced innovative technologies.

11. Creation of favorable conditions for the introduction of circular economy approaches in the field of housing and communal services.

12. Ensuring full coverage of the territories of agglomerations, large cities, and settlements bordering them with modern means of mobile communication and high-speed Internet in order to simplify citizens' access to administrative, social, and commercial services.

Tasks in the direction of "Strengthening the use of the medium-sized and small cities development potential"

1. Improvement of the legislative and another regulatory framework in the area of spatial development planning, in particular, taking into account climate change, and resistance to natural and man-made disasters.

2. Introduction of methodology for studying the needs of the labor market in the regions and formation of a government order for the training of certain direction specialists for the regions.

3. Improvement of the transport connections between cities and regional centers.

4. Ensuring the modernization of urban infrastructure, which reduces the need for non-renewable resources, creates resistance to natural and man-made disasters, and adapts the urban network to climate change.

5. Promoting the expansion of green spaces.

6. Stimulation of renovations and effective use of abandoned territories and production facilities in cities.

7. Promoting the introduction of innovative technologies into the urban development management system based on the Smart City¹²⁹ concept.

Let us highlight, in particular, the importance of Operational Goal 1 "Stimulation of the economic development centers (agglomerations, cities)." Its importance is determined by the need to form mechanisms to activate the socio-economic development of the Ukraine regions. As

¹²⁹ State regional development strategy for 2021–2027. URL: <https://zakon.rada.gov.ua/laws/show/695-2020-%D0%BF#Text>

the world experience indicates, when solving the problems of regional development, the key role among other measures plays the formation of the growth poles system. The creation of these poles is connected to stimulation of the certain types of economic activity, which are characterized by powerful multiplier effects and spread development impulses to the surrounding territory.¹³⁰

According to the Regional Development Strategy 2021–2027, its implementation tools are the action plans for implementation of the Strategy for the years 2021–2023 and 2024–2027 respectively; regional development programs and projects; regional development strategies and action plans for their implementation; state programs on the development of cross-border cooperation, socio-economic development of individual territories, regional development agreements and other regional development documents.

The analysis of these documents shows that they do not always pay sufficient attention to the implementation of specified operational goals, directions, and tasks formulated in the Strategy. This indicates that for a long time there has been a typical Ukraine problem, which is the inconsistency of the state documents, strategies, plans, programs, state planning documents regarding the development of individual administrative and territorial units, regions of different levels, and the development of settlements within them.

A fundamental inconsistency is an insufficient attention to the implementation of the 2030 global goals, in particular, Goal 11: Ensuring the openness, safety, vitality, and environmental sustainability of cities and other settlements.¹³¹ In none of the strategies for the development of Ukraine's regions till 2027, this goal is not defined as the number one strategic goal.

¹³⁰ Podgrushny, G. P. (2013). The significance of the poles of socio-economic development in improving the territorial organization of society. *Ukrainian Geographical Journal*. No. 4.

¹³¹ *On the goals of sustainable development of Ukraine for the period until 2030*: Decree of the President of Ukraine. URL: <https://zakon.rada.gov.ua/laws/show/722/2019>

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Meanwhile, the work to adapt the specified goals to the country's conditions was carried out in Ukraine, and a corresponding National report was prepared, in which the tasks and indicators and the terms of their achievement, were defined (**Table 3.1.1**).

Table 3.1.1. Tasks and indicators of the Ukraine 2030 Sustainable Development Goals (Goal 11)¹³²

Task	Indicators	Indicator points (year)			
		2015	2020	2025	2030
11.1. provide affordable housing	11.1.1. purchasing power coefficient (ratio of the household's monthly mortgage payment to its total monthly income)	45	40	35	30
	11.1.2. Share of mortgage application rejections in total loan application volume with inadequate consumer purchasing power (>43%)	43	37	35	25
11.2. Provide development of settlements and territories based exclusively on comprehensive planning and community governance	11.2.1. Share of regions that adopted and are implementing the regional development strategies and their implementation plans with the participation of local communities, %	80	100	100	100

¹³² *Sustainable Development Goals: Ukraine: National report.* URL: https://www.ua.undp.org/content/dam/ukraine/docs/SDGreports/SDG%20leaflet%20ukr_F.pdf

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11.3. Ensure the preservation of cultural and natural heritage with the involvement of the private sector	11.3.1. Number of objects of cultural and natural heritage included in the UNESCO World Heritage list, items	7	9	11	13
	11.3.2. number of the national level memorials listed in the Ukraine State register, items	855	1005	1155	1305
	11.3.3. Area of the natural reserve fund at the National level, % of the country territory	3,72	5,14	7,38	8,85
11.4. Provide timely notification of the population about emergency situations using innovative technologies	11.4.1. Level of reconstruction of the centralized countrywide population emergency notification system, %				
11.5. Reduce the negative impact of pollutants, including also urban environment using innovative technologies	11.5.1. Volume of the atmospheric polluting substances emission, % of the 2015 level				
	11.5.2. Total volume of atmospheric polluting substances emission from stationary sources, conditionally reduced to carbon dioxide and taking into account the relative toxicity of the pollutants, % to the year 2015 level (48.28 Mt)	100	95	90	85
	11.5.3. Total volume of atmospheric polluting substances emission from mobile sources conditionally reduced to carbon dioxide and taking into account the relative toxicity of the pollutants, % to the year 2015 level (48.28 Mt)	100	95	85	70

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	11.5.4. Number of cities where the daily average concentration of the main polluting substances in the atmosphere exceeds the maximum allowable daily concentration, items	23	22	20	15
11.6. ensure development and implementation of local development strategies directed at economic growth, job creation, growth of tourism, a recreation of local culture, and production of local goods and	11.6.1. Number of jobs in the tourism sector (average number of full-time employees at hotels and other tourist-related institutions of Ukraine), thousand items	88	100	120	150

Legislation in the field of urban planning policy in Ukraine is now sufficiently formed.

Relations in the field of urban planning activities are regulated by the Constitution of Ukraine, the Civil, Economic, and Land Codes of Ukraine, by the Law of Ukraine “On the Regulation of Urban Planning Activities”, by the laws of Ukraine “On the General Scheme of the Territory of Ukraine Planning,” “On the Basics of Urban Planning,” “On Architectural Activity,” “On the complex reconstruction of quarters (micro-districts) of the outdated housing stock”, “On land management”, other normative legal acts.¹³³ According to the Law: Urban development (urban construction activity) is a purposeful

¹³³ *On Regulation of Urban Planning* : Law of Ukraine. URL: <https://zakon.rada.gov.ua/laws/show/3038-17#Text>

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activity of state bodies, local self-governance bodies, enterprises, institutions, organizations, citizens, and associations of citizens to create and maintain a fullfledged living environment, which includes forecasting the settlements and territories development, planning, construction and other use of territories, design, construction of urban development objects, construction of other objects, reconstruction of historical settlements while preserving the traditional nature of the environment, restoration, and rehabilitation of the cultural heritage objects, creation of engineering and transportation infrastructure.¹³⁴

It should be noted that fundamentally important changes in the legislation of Ukraine were the changes that have to do with the implementation of the environmental component in planning processes, including the formation of the urban development policy. To a large extent, this happened in the process of Ukraine fulfilling its obligations undertaken in the context of European integration. In connection with signing the Association Agreement with the EU, Ukraine took the obligation to implement 26 EU Directives and 3 EU Regulations in the area of environmental protection, including Directive No. 2001/92/EC.

In the context of the implementation of those obligations, the Verkhovna Rada of Ukraine adopted on May 23, 2017, the Law of Ukraine on Environmental Impact Assessment, which came into force on December 18, 2017.¹³⁵

Subsequently, on March 20, 2018, the Verkhovna Rada of Ukraine adopted the Law of Ukraine *On Strategic Environmental Assessment*, which entered into force on October 12, 2018.¹³⁶

According to Article 1, Part 7 of the Law: Strategic environmental assessment—the procedure of detection, description, and

¹³⁴ *On the basics of urban planning* : Law of Ukraine. URL: <https://zakon.rada.gov.ua/laws/show/2780-12#Text>

¹³⁵ *On environmental impact assessment* : Law of Ukraine. URL: <https://zakon.rada.gov.ua/laws/show/2059-19>

¹³⁶ *On Strategic Environmental Assessment* : Law of Ukraine. URL: <https://zakon.rada.gov.ua/laws/show/2354-19>

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consequences evaluation of the state planning documents implementation for the environment, including public health, justification of alternatives, development of the preventive measures to reduce and mitigate possible negative consequences, which include determining the scope of a strategic environmental assessment, drawing up a report on a strategic environmental assessment, conducting the public discussion and consultations (if necessary, cross-border consultations), considering within the state planning document the report on a strategic environmental assessment, the results of public discussion and consultations, informing about the approval of the state planning document and is carried out in the manner specified by this Law.¹³⁷

According to the Law on SEO, changes were made to a number of Ukraine Laws. particularly, in the Law of Ukraine *On Regulation of Urban Planning Activities*, Article 2 was supplemented with the fourth part of the following content: “4. Urban planning documentation is subject to a strategic environmental assessment in the manner established by the Law of Ukraine *On Strategic Environmental Assessment*. Section *Protection of the natural environment*, which is being developed as part of the urban planning documentation project, and at the same time is a report on strategic environmental assessment, which must meet the requirements of the Law of Ukraine *On Strategic Environmental Assessment*.”¹³⁸

The SEO procedure and its practical application provide a significant improvement in the planning and practical implementation of the urban development policy. Its efficiency increases even more if it is combined with another component—landscape planning.

Landscape planning (LP) is an important tool of European spatial planning, which to a large extent ensures the implementation of the principles of sustainable development into the relevant policy. It should

¹³⁷ *On Strategic Environmental Assessment* : Law of Ukraine. URL: <https://zakon.rada.gov.ua/laws/show/2354-19>

¹³⁸ *On Regulation of Urban Planning* : Law of Ukraine. URL: <https://zakon.rada.gov.ua/laws/show/3038-17#Text>

be noted that today landscape planning has received its legislative confirmation in Ukraine as well. Resolution No. 926 of the Ukraine Cabinet of Ministers, dated September 1, 2021, approved the Procedure for development, update, amendment, and approval of urban planning documentation. According to the Procedure, among others, the List of charting materials within urban planning documentation includes a landscape plan (for a comprehensive plan).¹³⁹

Strengthening the ecological component in the urban development policy is determined by some other laws of Ukraine, in particular, regarding reducing the negative impact of urbanization processes on the natural environment, stopping the destruction of the natural environment within cities, in particular, preventing the unjustified destruction of green spaces within cities during construction or other works, illegal allocation of land plots occupied by green areas for construction.¹⁴⁰

As stated in the Environmental Policy Strategy: “Differences in the socio-economic development of the Ukraine regions cause an uneven man-made burden on the surrounding natural environment.” It is assumed that provisions of the Strategy for the period till 2030 and the national action plans developed on its basis will be integrated into regional programs of socio-economic development and detailed at the level of regional action plans for environmental protection of the Autonomous Republic of Crimea, oblasts, cities of Kyiv and Sevastopol, on the basis of which local action plans for environmental protection,

¹³⁹ *On the approval of the Procedure for the development, updating, amendment and approval of urban planning documentation* : Resolution of the Cabinet of Ministers of Ukraine dated September 1, 2021 No. 926 URL: <https://www.kmu.gov.ua/npas/pro-zatverdzhennya-poryadku-rozroblennya-onovlennya-vnesennya-zmin-ta-zatverdzhennya-mistobudivnoyi-dokumentaciyi-926-010921>

¹⁴⁰ *About the Basic principles (strategy) of the state environmental policy of Ukraine for the period until 2030* : Law of Ukraine. URL: <https://zakon.rada.gov.ua/laws/show/2697-19#Text>

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prepared at the level of territorial communities, city, village and settlement councils, will be developed.¹⁴¹

In this regard, we note, as a systematic remark, that provisions of this strategy are insufficiently implemented in the specified documents.

However, in general, it is possible to point out the continued dominance of economic and social priorities in Ukraine and the environmental aspects of development as the secondary ones. In particular, in none of the regional development strategies of Ukraine till 2027, the environmental aspects of development is defined as the primary strategic goal of development, and on average they are placed only in fourth place among the strategic goals of regional development.

The process of administrative-territorial reform and decentralization, particularly the consolidation of districts and creation of the united territorial communities, gave further impulse to the improvement of urban development policy. The legislative basis for its initiation was the

*Concept of Reforming Local Self-Governance and Organization of Territorial Power in Ukraine*¹⁴² approved by the Decree of the Ukraine Cabinet of Ministers. Later, the Decree of the Ukraine CoM of *On approval of the plan of measures for the implementation of the Concept of reforming local self-government and territorial government organization in Ukraine*¹⁴³ was adopted (it was later replaced by the provisions of the Ukraine CoM Decree, dated September 22, 2016 No.

¹⁴¹ *About the Basic principles (strategy) of the state environmental policy of Ukraine for the period until 2030* : Law of Ukraine. URL: <https://zakon.rada.gov.ua/laws/show/2697-19#Text>

¹⁴² The concept of reforming local self-government and territorial organization of power in Ukraine: URL: <https://zakon.rada.gov.ua/laws/show/333-2014-%D1%80>

¹⁴³ *On approval of the plan of measures for the implementation of the Concept of reforming local self-government and territorial organization of power in Ukraine* : Order of the Cabinet of Ministers of Ukraine No.591-r dated June 18, 2014. URL: <https://zakon.rada.gov.ua/laws/show/591-2014-%D1%80>

688).¹⁴⁴ In 2015, the Law of Ukraine *On the Voluntary Unification of Territorial Communities*¹⁴⁵ was adopted. Subsequently, a number of fundamentally important documents regulating these issues were also adopted. In connection with the mentioned reforms, issues of the development of state planning documents regulating the development of new administrative-territorial units, including the development of cities within their boundaries, are being updated.

Among the new Laws of Ukraine, as fundamentally important for the further regulation of spatial planning policy, one can name in particular the Law of Ukraine No. 711-IX dated June 17, 2020 *On Amendments to the Land Code of Ukraine and other legislative acts on land use planning*¹⁴⁶ effective July 24, 2021, with subsequent changes and amendments to the Law of Ukraine No. 1423-IX *On Amendments to Certain Legislative Acts of Ukraine Regarding Improvement of the Management System and Deregulation in the area of Land Relations*.¹⁴⁷

However, a fundamental flaw in the implementation of the urban development policy is the inconsistency of state planning documents which determine plans and strategies of city development with development plans and strategies of administrative-territorial units, which include those cities, and also inconsistency of such documents vertically—at the levels of the country and administrative-territorial units of the different rank. This fact is recognized in the management structures, which is expressed in particular by the thesis: “In addition

¹⁴⁴ *Some issues of implementation of the Concept of reforming local self-government and territorial organization of power in Ukraine*: Order of the Cabinet of Ministers of Ukraine No. 688 of September 22, 2016. URL: <https://zakon.rada.gov.ua/laws/show/688-2016%D1%80>

¹⁴⁵ *On Voluntary Unification of Territorial Communities*: Law of Ukraine. URL: <https://zakon.rada.gov.ua/laws/show/157-19#Text>

¹⁴⁶ *On Amendments to the Land Code of Ukraine and other legislative acts on land use planning* : Law of Ukraine No. 711-IX dated June 17, 2020. URL: <https://zakon.rada.gov.ua/laws/show/711-20#Text>

¹⁴⁷ *On Amendments to Certain Legislative Acts of Ukraine Regarding Improvement of the System of Management and Deregulation in the Field of Land Relations* : Law of Ukraine No. 1423-IX. URL: <https://zakon.rada.gov.ua/laws/show/1423-20#n1440>

to the need for personnel renewal, the issue of building the effective cohesive system of strategic, program, and budget planning documents at the central and local level is really urgent. Since 2014, more than 72 concepts and 52 strategies have been adopted at the state level, and there is practically no mechanism for the mutual coordination of such documents. Often local executive bodies and local self-governance bodies are not informed about the actions of the central executive bodies carried out in a certain territory. There is a need to strengthen the coordination of branch policies implemented in the regions at the central level.”¹⁴⁸ However, the need for further measures in this direction remains relevant.

Summarizing considerations about the strengths and weaknesses of Ukraine, urban development policy the following several main provisions should be emphasized:

The state has made significant progress in ensuring the management of urban territories, in particular, their planning. This progress is especially noticeable in the context of European integration, after 2014.

Despite gradual adaptation in Ukraine the concepts of urban development inclusiveness known in EU countries, participation in the development of general and detailed city plans, declaration of sustainable development principles, as well as awareness of urgent environmental problems and mechanisms of their practical implementation remain insufficiently developed. Accordingly, the results and therefore the quality of life in urban environments, are not always noticeable in both small and large cities.

As the research has shown, significant attention should be paid to the formation (improvement) of the balanced urban development indicators system, which naturally goes beyond the scope of Goal 11. Its foundation should be the indicators proposed in the research and at the same time, it also remains important to expand and adjust their list, as well as provide a high-quality database. This will contribute to

¹⁴⁸ *State regional development strategy for 2021–2027*. URL:
<https://zakon.rada.gov.ua/laws/show/695-2020-%D0%BF#Text>

objective and effective development monitoring of the cities of various types.

Equally important is the timely verification of the balanced development assessments. The conducted research proved the existence of a significant correlation between both approaches. This also confirms the importance of conducting sociological surveys, both of ordinary citizens and within the expert environment.

Improving the planning practices is undoubtedly a necessary step, which fortunately is now receiving support and momentum. At the same time, it is worth paying attention to the parties involved in the development and implementation of planning decisions. It is the level of their awareness and, in the case of developers and representatives of management structures, their qualifications that ultimately determine the content of the plan and the consequences of the project decisions. Therefore, educational programs should be improved, event programs should be formed to popularize knowledge about a balanced city, and highlight the role of planning documents in the development of the community. In particular, this applies to the “new urbanism,” which is still not sufficiently understood in Ukraine, which will be discussed further.

3.1.2 Implementation of the “new urbanism” principles into the urban development management

With urbanized space problems growing, the idea of creating cities that are comfortable for life and friendly to people, regardless of their socio-economic or physical-biological characteristics, is gaining momentum. New urbanism is a socially-oriented trend in the construction of cities, which focuses on issues of human life quality in the urban environment. Therefore, leading theorists of urban studies, in particular Lewis Mumford, developing the idea of the city mission, consider its main function to be the transmission of human civilization’s cultural heritage. Along with the generally accepted functions of cities,

the scientist proposes to define more important ones, historically defined and timetested. In 1993–1994, the ideology of new urbanism was launched in the USA and was perceived by the world scientific community as a new trend in the development of cities, as an attempt to restore the spirit of the territorial community and the sense of community. According to this ideology, urban space is an area for people, not machines. People live, work, and rest in one place where important infrastructure facilities are located within walking distance.

According to the new urbanism position, the urban structure of the metropolitan region, considered a fundamental economic category, includes the following hierarchical elements:

- The first level (components of the region): metropolis, city, and town.
- The second level (components of the metropolis): neighborhoods (suburbs), districts, and corridors.
- The third level (components of neighborhoods and districts): blocks, streets, and buildings.

For each level, a clear organizational and planning framework is provided with recommendations for development based on the following new urbanism principles:

1. *Pedestrian accessibility.* This principle suggests that most facilities should be within a 10-minute walk from home to work. Narrow streets are pedestrian-friendly: speed limits for cars, buildings with storefronts and street-level entrances, trees planted along the streets, parking spaces hidden in backyards, etc.

2. *Connectivity.* The network of interconnected streets provides favorable distribution of traffic and facilitates walking. Hierarchy of streets (narrow streets, boulevards, alleys). The high quality of the pedestrian network and public spaces make walking attractive.

3. *Mixed use, multifunctionality, and diversity.* A diverse and mixed layout of shops, offices, and individual housing, promotes the development of small businesses. Multifunctionality of individual districts, blocks, and buildings. Mixing people of different ages, income levels, cultures, races, etc.

4. *Various buildings.* Different types, sizes, and price categories of houses are located next to each other.

5. *Quality of architecture and urban planning.* Emphasis on beauty, aesthetics, comfort, creating a “sense of place.” Public spaces are arranged to meet the needs of each community. Architecture and the general organization of the urban environment raise the humanistic mood of society.

6. *Traditional neighborhood planning structure.* The center and peripheral zones are clearly defined. High-quality public space is available in the center. The main facilities used every day are within a 10-minute walking distance. The highest density of objects is in the city center, it decreases as you move away from it (application of the cross-planning approach).¹⁴⁹

7. *The principle of higher density.* Buildings, residential houses, shops, and service centers are located close to each other to facilitate pedestrian accessibility, provide higher efficiency in the use of resources and services, and create a more favorable living environment.

8. *Green transport.* A network of high-quality public transport connects cities, towns, and neighborhoods. The layout is pedestrian-friendly with extensive use of bicycles, roller skates, scooters, and walking for daily transportation.

9. *Sustainable (balanced) development.* Minimal impact of structures on the environment. Environmentally friendly technologies, respect for the natural environment, and awareness of the value of natural systems. Energy efficiency, reduction in the use of non-renewable energy sources, increase in local production, pedestrian traffic, reduced car use.

10. *Quality of life.* These principles combined create a high quality of life and allow for the creation of cities that uplift, enrich and inspire

¹⁴⁹ Transect planning is a zoning methodology that involves the formation of a number of zones with different density of objects and a gradual change of the urban type of land use to rural, and then to nature conservation.

the human spirit. The principles of new urbanism are applied to all categories of cities—from small to the largest.

In Europe, new urbanism was a foundation of neo-traditional approaches to urban planning, which involve the observance of classical historical, traditional planning, and architectural styles lost in the 20th century. Each European country is unique in its historical and traditional features, and the restoration of these features in the latest urban planning practices contributes to the preservation of the territorial identity of cities and urban settlements. A vivid example of the application of the latest approaches is the city of Le Plessis-Robinson, near Paris, which was awarded the prize as the best architectural project in the European Union in 2008. Other examples of the new urbanism principles application in Europe are demonstrated in the section of individual small towns or renovated areas in the cities, for example, the city of Amersfoort in the Netherlands, the district of Hammarby Hjostad in Stockholm (Sweden), the district of Adamstown in Dublin (Ireland), Vauban in Freiburg (Germany), etc.

In Ukraine, when developing the urban development policy, one should focus on the modern trends in the development of European cities, which can be structured as follows:

Towns of residents-citizens are being formed. At the same time, local self-governance, implementation of the right for the place, compliance with the principles of public ethics according to the European Code of Conduct for local and regional elected officials, giving migrants the right to vote and the right to be elected to local councils become the priority.

- The activities of self-governance bodies fit into regional, national, and European regulations based on balanced and respectful partnerships. Some issues cannot be resolved locally (urban planning, transport and information infrastructure, housing rights, environmental protection, etc.). Cities can contribute to the redistribution of resources, but the state is the guarantor of solidarity between territories.

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- According to the updated Sustainable Development Strategy of the EU (2006), the role of the environmental component has been strengthened. Sustainable development of the cities includes obligations to reduce the level of the ecological impact of cities, preserve their natural resources, maintain and develop biodiversity, and organize public access to public structures and their networks while putting energy efficiency at the center of the policy.
- Compact and condensed urban forms, pedestrian access to all necessary institutions and services are becoming promising.
- Limitation in the growth of cities due to increased control over the distribution of land is observed.
- Balanced (sustainable) mobility is strengthened. Effective “traditional” means of transportation (on foot, by bicycle, public transport) are being developed. The new distribution of the transport network includes various types of traffic, limiting the use of private cars and motorcycles.
- Special attention is paid to social equality and fusion, social and territorial cohesion. Equal access for all in the field of education, health care, culture, and housing. In particular, there is an effort to ensure the right to housing—in all neighborhoods, there are various housing offers for both the rich and the poor with the purpose of social mixing. A policy of active solidarity based on democratic ethics is implemented, which is needed to promote solidarity between generations, with regard to low-income people, the disabled, and all those who experience financial and social problems. The ultimate goal of this policy is to fight social exclusion and give everyone the opportunity to use the enormous potential of the city.
- Increasingly, cities are considered centers of the knowledge economy. Deindustrialization, the spread of information and communication technologies, the emergence of biotechnology and, in general, the development of intangible economic activity create new forms of development, and urban areas play a leading role in this. The priority of knowledge and innovation, access to education, research,

and cultural and creative activities, creates the basis of the knowledge economy.

- More and more weight is attributed to the preservation of the uniqueness of cities in terms of their traditions, culture, and architecture, while standardization of construction and unification of globalist-type urbanization, which follows only the rules of the global market and imposes the same approaches on all cities, is being abandoned. A high level of the cultural infrastructure of traditional cities is being supported.
- Emphasis is placed on the diversity of cities and diversity within the city itself, integration of cultural diversity. Being proud of his originality, a person needs to consider it as a factor of openness, to develop a calm perception of the originality of others.

Nowadays, a complex socio-economic situation has developed in most cities in Ukraine. In particular, the uncoordinated implementation of various and often ill-conceived reforms during the years of independence caused the decline of industrial and social infrastructure, which led to the loss of city-forming and city-sustaining systems in most urban settlements in Ukraine and the weakening of their leading functions. This state of affairs in the cities led to an increase in unemployment and impoverishment of the urban population. All this requires the development and as soon as possible practical application of new mechanisms for managing the socio-economic and spatial development of the city.

With general depopulation and stagnation in the villages, with the outflow of the residents to the cities, in a significant number of Ukraine's large cities, there is a surge of construction with the main goal of obtaining instant profit, which spontaneously and chaotically developing the urban space. Local investment projects, the creation of so-called residential complexes and neighborhoods (for example,

Akvareli, Chaika, Kotsyubinsky, etc., near Kyiv, or Kirovsky, Panorama, Atlant in Dnipropetrovsk, Cheremushki—in Kharkiv, etc.), or complex office, shopping, and entertainment centers are directed at the purchase of housing by the privileged minority, or the provision of

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services to the so-called middle class. At the same time, zoning and development schemes of the territories, and general plans of settlements are ignored, and rules, norms, and legislation, in general, are not followed. There are problems of the city spreading beyond its administrative borders, homogenization of the architectural image of the city, violation of its integrity, the burden on the existing objects of urban and suburban infrastructure, etc. Against this background, residents are alienated from the city and from each other, which, in the demographic aspect, is exacerbated by the general aging and handicap of the population.

The chance to improve this situation is in the direction of a socially-oriented concept of urban development with the use of landscape planning methods and new urbanism approaches based on the

Ukrainian mentality, culture, and traditions. Already today, regardless of the difficult political and economic situation in the country, it is necessary to create a legislative basis for the popularization of precisely such approaches to the construction of an accessible city depending on the size of its population. The idea of compact, multifunctional space, oriented at different ages, capabilities, and features of the inhabitants is a necessary element of urban development in the philosophy of new urbanism. A favorable, friendly city provides a chance for cultural transformation and self-realization of a person, which L. Mumford pointed out, it becomes a sociocultural environment in which a citizen is formed as the foundation of a nation.

3.2 Ensuring inclusiveness of urban spaces

The problem of ensuring the balanced development of the Ukraine cities is multifaceted, and one of the first tasks is developing a methodological basis and improving the tools for creating and maintaining the inclusiveness of urbanized territories, researching the territorial organization of access to social resources. Considering the fact that the balanced development of cities means, among other things, a significant increase in opportunities that allow their residents to achieve their own life goals, the quality of life is also beginning to be studied in terms of the gap between presence/absence of the elements of urban environment that ensure the convenience of mobility and meeting the needs of people with various limitations and without them. The transformation of urban space by improving its accessibility and reconstruction of urban locations while taking into consideration the needs of the representatives of various social groups and their mobility options are possible due to the development of agglomeration trends and urban planning practices in line with inclusive trends in the world and in Ukraine. According to the National Strategy on creation of a barrier-free space in Ukraine for the period until 2030, the barrier-free space is a general approach to the formation and implementation of the state policy to ensure unhindered access of all population groups to various areas of life.

The following trends contributed to prioritization of the inclusivity problem in Ukrainian cities:

- ageing of the population and increase in the number of people with disability, which places special demands on city infrastructure, health care and social security system, housing and public spaces;
- most objects of the physical environment are not adapted to their use by people with disabilities and other groups of the limited mobility residents;

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- economic restructuring of the land use, privatization of state and municipal property and deregulation of urban planning all contributed to the rapid transformation of space not in favor of its accessibility increase;
- humanizing the living environment, raising requirements for comfort and safety of people's life;
- development of public (public) spaces (amusement and leisure parks, exhibition centers, trade and service centers, health and wellness, sports and tourist complexes, innovation and art centers, etc.), which form the framework of the city's creative industry;
- growing importance of the historical and cultural heritage and the originality of cities, which determines the preservation of the historical urban landscape, natural and cultural objects, transport routes that determine the "aura" of the territory;
- growth of natural and man-made threats, environmental problems and noise pollution of cities, neglect of many green areas;
- awareness of the role of tourism as an important and profitable branch of the city's economy;
- raising the functional saturation of urban spaces and the intensity of the territory use in order to reduce the travel time within cities; divided since the socialist times into "sleeping" and "business" districts;
- change in the population's housing needs, which has to do with "residential" mobility and renting the housing, as well as with changes in requirements for the housing quality and its location;
- creation of safe conditions for the preservation of health and social justice in conditions of extraordinary events (in particular, the spread of viral pandemics such as COVID-19), etc.

Inclusive culture is gradually becoming one of the goals of development, the foundation of better social cohesion, creation a socially sensitive urban environment. A separate serious challenge today is the demand for a "coronavirus" transformation of public space in terms of social distancing, concentration of various types of infrastructure, development of public transport and low-mobility

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means of transportation, etc. As a result, today the priority development directions of the Ukrainian geo-urbanism «inclusive vector» have almost been formed:

- development of spatial inclusiveness models in Ukrainian cities;
- monitoring the creation of accessible environment for citizens of different ages and degrees of mobility;
- participatory strategic urban planning;
- social examination of urban space inclusiveness;
- professional training of geo-urbanists in the new conditions of city formation and management of their development.

Assuming the provision of synergistic, co-evolutionary and integrated development of economic, social, ecological and cultural subsystems, the balanced development of cities relies on the fundamental relationship between the physical shell (space and infrastructure, natural environment) of the city and the lives of residents, urban economic and social processes. In this regard, the question of “inclusion”—the principle of life in society organization (including spatial), is one of the fundamental ones, which allows participation of all people, regardless of their status, health condition, appearance, age, gender, ethnic or religious affiliation, etc., in its various aspects (labor market, everyday life, education, culture, art, etc.).

The concept of inclusion goes far beyond taking into account the interests of the disabled in territory development which currently touches the issues of city lighting, improvement of public spaces considering the interests of representatives of different genders, ages and positions, reconstruction of streets, squares, community participation in development planning, etc. We are talking about a wide list of security aspects and reduction in the space conflict potential. Balanced conditions are provided by various development models, which provide for the modernization of already developed areas, work with urban infrastructure, connectivity, accessibility and permeability of urban forms and objects. The practical experience of many cities in the world shows that focus on inclusiveness generates positive effects

not only for the less mobile segments of the population, it also generates serious economic effects, effects of infrastructural renewal and technological development of urban areas.

The vast majority of the existing inclusivity definitions characterize only its external side (as a given or acquired property of the urban environment, its qualitative characteristics that make the city accessible to everyone, including the most vulnerable groups) and say nothing about internal inclusion—people’s perception of one or another urban environment, opportunities to realize one’s own individual right to the city. The last fact confirms the need to apply sociological methods of assessing the level of balance and cities inclusiveness by their residents.

Social inclusion (inclusion “from a person”) should be understood as the absence of discrimination, disrespect, indifference of city residents to each other, the opportunity of their adaptation and integration based on urban identity. This is an opportunity for different groups of people to be visible in the city, to fully use its resources, to participate in social contacts and space organization. In this regard, the urban environment should offer at least three main components:

(1) *social security*—absence of hostility towards people with disabilities and representatives of other social, possession or mental groups;

(2) *mobility*—convenience and safety of moving around the city, the opportunity to use its infrastructure in full (walking distance, speed and convenience of public or personal transport movement and ease of navigation in the city);

(3) *variability*—the opportunity of parallel or sequential use of the urban territory by different social groups, multidirectional filling with functions (events) of the same territory (someone moves quickly, while others need to sit down, the environment must take into account everyone’s needs, the space adapts to different interests).

As a result, the socially inclusive potential of the urban environment is characterized by the barrier-free physical space and open social space created in it. It is quite difficult to give a quantitative assessment of the

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level of inclusiveness in a particular city, rather it can be empirically described according to a number of features: such as mobility opportunities for the population, presence (or absence) of obstacles which do not allow the independent movement of people with disabilities, the presence of equipped and multifunctional public spaces, places of leisure, the absence (or presence) of segregation, tolerance of minorities, the scale of “privatization” of certain places (territories) by one social group, etc. (**Fig. 3.2.1**).

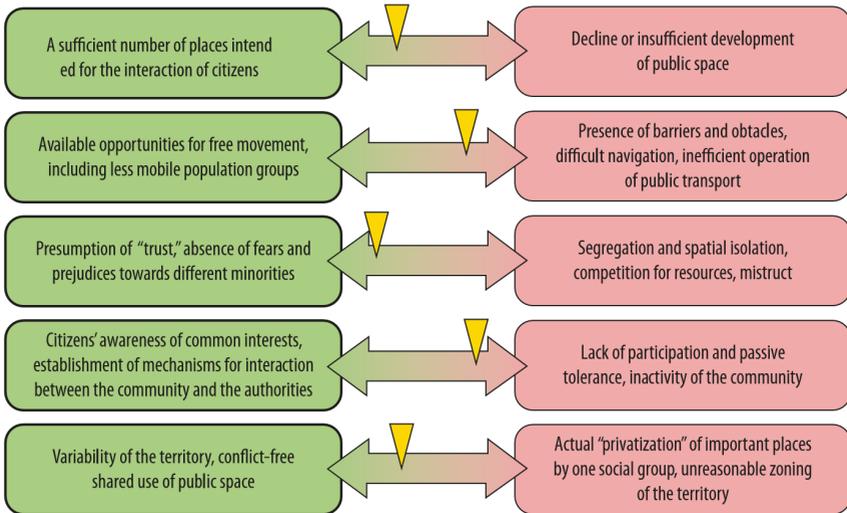


Figure 3.2.1. Evaluation of the urban environment inclusiveness in the space of features

Therefore, when assessing the level of the urban environment inclusiveness, one should take into account not only availability of infrastructure, certain “urban” resources (in particular, for people with limited mobility), but also the ability of the urban environment to form a certain urban identity, to ensure communication between different people and social groups, develop tolerance, intercultural and interfaith competence. We can also add the political significance of public spaces, because they, in certain periods of bifurcation, are returned to the citizens as a place for representation of their political

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ambitions and exercising the right to be visible political subjects. The Euromaidan events in Kyiv and other Ukrainian cities in the winter and spring of 2014 can be seen as evidence of the political “mastery” of the space process. This is especially important in the view of significant reduction and compression of public spatial resources as a result of privatization of many city objects and territories.

Another important aspect of inclusiveness is the geographical and economic inequality in Ukrainian cities: in Ukraine, there is a significant differentiation between large agglomerations and smaller, peripheral and old industrial urban settlements, which results that there is significant difference in the population quality of life and opportunities for self-realization. Therefore, a multi-level and multi-faceted approach to the development of cities is needed, whose well-being and prosperity is important for the country as a whole. At the same time, it can be argued that the largest cities in Ukraine are focused on the large-scale “impressive” urban projects, while the more inclusive policy envisages exactly the externalization/joint use of the large city resources in the interests of the entire urban system, not a single city. Such policy is possible with the help of state system of redistribution, territorial planning and integration, polycentric model of regional development or improvement of transport connections and logistics as well as creation of favorable infrastructure.

According to experts, ensuring the urban space inclusiveness can be implemented within the modern concept of “new urbanism,” which is a socially oriented direction in urban planning which shifts the emphasis towards ensuring the population quality of life. At the same time, in monitoring the inclusiveness of space, it is advisable to start with micro geography of specific cities and consider inclusive areas as certain growth points thanks to the emergence of certain emergent properties of space, which are methodologically still outside the scope of classical studies of quality of life of the population. The problem of preservation and development of a healthy ecologically favorable natural environment should also be considered as an element of creation of the urban space inclusiveness, including parks, squares,

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beaches and other green recreational facilities, which do not have physical barriers for their visit by various residents, as well as prevention of the objects of the nature reserve fund degradation, suppression of natural mechanisms of their self-regeneration. In this direction, the well-known principles of landscape organization of public spaces remain in demand such as greening, multi-functionality, aesthetic harmonization, continuity, ergonomic efficiency and inclusivity [], the observance of which allows specialists working in the field of urban planning to significantly improve the condition of many areas in the city, improve comfort and increase the level of their security, as well as compositional unity.

Inclusiveness has already become an end-to-end principle of the state policy in Ukraine. In April 2021, the National Strategy for the Creation of a Barrier-Free Space in Ukraine for the Period Until 2030 was approved by the order of the Ukraine Cabinet of Ministers the purpose of which is to create a barrier-free environment for all population groups, to ensure equal opportunities for each person to exercise their rights, to receive services on a par with others by integrating physical, informational, digital, social and civil, economic and educational barrier-freeness into all spheres of government policy.

The State Building Regulations, which contain a complex of architectural-planning, engineering-technical, ergonomic, structural and organizational measures to ensure the accessibility of buildings and structures, remain the basic document for the creation of an inclusive living space in Ukrainian cities. As of April 1, 2019, the new DBN B.2.2-40:2018 *Inclusiveness of buildings and structures* came into force, which are based on European standards and modern approaches to ensuring the comfort and safety of living space for people with disabilities []. In our opinion, in addition to physical (architectural) accessibility, which is included in these norms, it should also be about the mental accessibility of space, about the psychological state of a person who understands that the space is adapted to his various needs and interests, and to whom all information about, its history and the people who take care of it is available.

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The COVID-19 pandemic demonstrated how important for the population health and its longevity are the quality of housing and its surrounding environment, its functional content, diversity, presence of green areas, organization of public transport, and its accessibility. During the so-called “knockdowns,” every person to some extent felt limited in one way or another. The threat of the corona virus disease made a significant impact on digital inclusion—the integration of electronic technologies into urban planning and management, digitalization of many city services, the creation of Internet platforms for shared use, which opened up new opportunities that were not used actively enough before (shared use of cars, bicycles, small mobile modes of transport, etc.). Therefore, the topic of inclusion reached a new level of understanding and collective responsibility.

3.3 Managing the conflicts of urban development

Important methodological and practical aspects of the urban conflicts settlement were and still remain a relevant problem today. Difficulties in developing an effective mechanism to settle the contradictions which take the form and features of acute conflicts, are primarily the result of significant conflict potential of the city as a system. Taking into account socio-economic origins and the nature of conflicts in the city, it should be noted that, as in case of any conflict of interests (for example, production, property, labor or administrative), same universal (to some extent) methods and tools can be applied to settle such city conflict. However, taking into account some specific features of conflicts in the city, the required condition to follow when developing a complex conflict resolution mechanism is compliance with the principle of its consistency, which is the key in organization of socio-economic systems.

Several parties (economic subjects, ethno-cultural communities, etc.) are always involved in any urban conflict. At the same time, the potential for conflict increases significantly while settlement potential decreases as a result of expansion of the conflict participants range and inconsistency in their interests (up to antagonistic goals).

Information inequality is a specific feature of urban conflicts. Informational risk factors include the following: limited and asymmetric information; no access to information; use of insider information; disinformation; withholding/concealing (intentionally) the causes, scale, risks and consequences of urban conflicts; distortion of information; involvement of unqualified experts/analysts/specialists; practice of the "closed" reports, etc.

The choice and implementation of one or another conflict prevention or settlement strategy depends on many factors, most of which are subjective in nature. Therefore, development of the unified

conflict resolution mechanism is impossible from organizational point of view. First, let's outline the basic principles on which, in our opinion, the mechanism of urban conflict resolution should be built. They include the following:

The principle of coordination the interests of all parties to the conflict is decisive in socio-economic systems. It is an axiom that the conflict subjects' economic interests prevail over other public (social, environmental) interests. In the market system, the primary imperative is economic (financial) interest: benefit, profit, effect. Therefore, the key task when settling urban conflicts is to find a mutually acceptable compromise between maximization of economic effects in terms of profit and minimization of social losses. In today's Ukrainian realities, this is an extremely difficult task, especially under the conditions of weak legal framework, shortage of financial resources, low level of democracy and weak public control.

The principle of rationality, as a subject behavior type, aimed at achieving a specific result. In the case of urban conflict, we are talking about the subject's rational behavior when choosing a conflict resolution strategy. It should be remembered that any subject is focused primarily on economic benefit, therefore, they choose appropriate decisions - oriented to maximize the result acceptable for themselves. So, according to this principle in the patterns of conflict resolution, the subject will prefer the best option from the available alternatives, pursuing, first of all, his economic interests. Adherence to the principle of rationality is closely tied to optimization of the limited resources distribution models, which is relevant in conflict conditions. It should be taken into account that conflict resolution procedures are based on the behavioral theory of the person making the decision, so cases of irrational behavior of the parties to the conflict are also possible.

The principle of synergy. Self-organization processes are continuous and dynamic, where positive feedback plays an important role. Under the influence of external factors and various types of fluctuations, the natural system acquires new features and states where total effect

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(total impact) of several system factors (external and internal) is almost always different from the effects of individual factors. That is, the effect is usually maximized due to the integrity of the system. The synergistic potential of urban conflict resolution is formed by economic, social, ecological, labor, resource, informational, innovative, educational and other effects, with their manifestation possible in the future.

The synergy effect is closely related to another principle - the principle of delayed effects. Decisions on urban conflict resolution strategies made today must be assessed with consideration of indirect effects and be forward-looking. Usually, the consequences of conflicts, accidents and disasters take place not only “here” and “now”, but also in the future: long-term destructive effects are related to the possibilities of assimilation potential, the ability of the environment to self-renew, features of urban politics, etc.

The principle of compensation for damages caused by the parties to the conflict, to urban infrastructure, and the population. Compensation can take various tangible and intangible forms—from financial compensation to investing in various activities, social and infrastructure projects on the territory. In the process of the urban conflict settlement, the key task is to determine the amount of compensation, sources and subjects of compensation, legal provisions of compensation procedures, and designation of controlling institutions.

Settlement of urban conflicts is ensured by involvement and practical use of various strategies, techniques, methods and tools. Their range depends on the type of urban conflict, its causes, dynamics and intensity of its development, interests of conflicting parties, etc. Institutionalization of the conflict, identification of the conflict parties, development of strategies and technologies for its settlement are mandatory conditions for the rational resolution of urban conflicts. The practice of conflict resolution shows that regardless of the chosen strategy and approaches, a positive result is possible if certain set of requirements is met. And the first of them is the institutionalization of the conflict. It is about establishing a clear procedure for settling confrontational relations. In an institutionalized conflict, the

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incompatibility of the parties is expressed within the norms and rules established in society, hence the behavior of participants in the conflict becomes predictable. Non-institutionalized conflict, on the contrary, is characterized by absence of the principles which regulate and most often represent a spontaneous and uncontrollable explosion of discontent. Of course, the preference is given to the first option, but it requires for certain conditions to be created.

Institutionalized mechanism refers not only to legal acts, the range here is quite wide—a protocol, a memorandum and even ordinary verbal agreement on solving a problem from the point of view of conflictology is not reduced to a form, but to the presence of voluntary consent, the willingness of people to adhere to the established order.

In other words, simultaneously with the task of institutionalizing the conflict, it is necessary to solve the task of legitimizing the latter. And if, for example, any law is outdated, and another, which meets the new conditions, has not been adopted, then the role of a legitimate institutional procedure can also be played by an illegal from the point of view of jurisprudence act.

A specific method of settlement (resolution) of the urban conflict is a complex of balanced measures and tools of economic and legal nature, the involvement and use of which will contribute to achievement of the conflict settlement goals. The main methods of urban conflict resolution include:

- Unwillingness or inability (for objective or subjective reasons) to recognize the existence of a conflict. In the long term perspective, the transformation of the conflict into a latent one and, if further ignored, into the one which cannot be resolved, is not excluded.
- Settlement of the conflict by the joint efforts of the parties involved in it. Based on information from all involved parties and the results of joint actions (actions, agreements), the participants in the conflict independently make an agreed decision which satisfies the interested parties. Most often, this conflict resolution procedure is used by the local authorities, institutional structures, and other authorized organizations, because they have the necessary

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knowledge, experience, universal procedures, technical and organizational potential.

- Involvement of a third party in conflict resolution and compliance with procedures (for example, criminal, administrative proceedings; constitutional, tertiary and arbitration courts).
- Settlement of urban conflicts by involving public, political and other organizations. It is about managing urban conflicts through influence procedures: interest lobbying; requirements for changes to the normative-legislative framework and regulatory acts; initiation of public and political actions, discussions, referenda, debates, hearings, commissions, etc.

It is important to understand that conflict management means not only the determination of possible areas of their occurrence, but also the reduction of conflict potential (conflictogenicity), that is, the prevention of conflict situations, use of administrative tools to influence the processes of joint activity in such a way that objective contradictions do not escalate to the stage of conflict.

Conflict management is a purposeful and determined by objective laws influence on its dynamics in the interests of development or destruction of the system which has to do with the conflict. The main goal of conflict management is to prevent the destructive consequences of conflict and promote constructive ones. The effectiveness of conflict management depends on stability of the system, which is affected by: the scale of dysfunctional consequences, the elimination of the causes of contradictions, the probability of contradictory clashes.

Conflict resolution is the final phase in the management process, which ensures the end of the conflict. The solution can be complete or incomplete. A complete resolution of the conflict is achieved on the condition when its causes, its object, or the conflict situation is eliminated. Incomplete resolution is characterized by partial elimination of the conflict situations cause.

- Use of price regulation procedures for “conflict” resources; transformation of resource modes (access mode, use mode,

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management mode) for the purpose of settlement; market instruments (competition, preferences, prohibitions, etc.).

- Resolving conflicts by force: violent confrontation, violent actions, armed clashes, actions of civil disobedience, deliberate sabotage of decisions, etc.

Urban conflicts are characterized by different settlement potential, by which we understand the ability of the conflict to be resolved (settled), regardless whether the results are acceptable for the conflicting parties in the future. The settlement of conflicts in the city is ensured by involvement of various strategies, methods, methodologies and tools, the choice and practical use of which depends on the causes, the object, the dynamics of development and intensity of the conflict course, the specifics of the interests and characteristics of the parties to the conflict, etc.

However, it is necessary to take into consideration that the indiscriminate use of geographical methods in the study of urban conflicts creates a threat of reductionism. A simplified view of the conflict as a system may threaten the scientific incorrectness of the obtained results. In our opinion, the geographical study of conflicts requires a wide involvement of methods of relevant fields of knowledge and other sciences. In the absence of data in the national statistical system that would directly or indirectly characterize conflict potential in cities and beyond, data collection for the needs of research, in our opinion, should be based on event and content analysis, system and situational analysis and a group of other sociological methods of conflict interaction research.

Currently, a fairly common opinion is the idea that it is possible to prevent urban conflicts through the organization and functioning of a "Smart City." It can be argued that the "Smart City" is an urban utopia of the information age. A city under the control of technology, where problems are solved in real time thanks to algorithms of instant data transmission and the provision of relevant solutions. In such a city, an engineer becomes one of the urban professions on a par with urban planner and an architect.

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The modern convergence of digital technologies and architecture has given birth to a new dialectic which affects the urban space, where problems of technical control, access and freedom of action play primary role. Although the emergence of computer networks lately made it possible to create an environment tailored to the needs of the user, it also gave rise to sophisticated forms of centralized control over the urban space and social interaction. Digital networks provide us with opportunity of “gaseous dispersion” of urban structures, but the other side of this coin is the strengthening of control over the mobility, people actions and contacts, the accumulation of information about them in electronic databases. More and more often, one can hear cautious assessments from the expert community of urbanists regarding the possible threat to democracy from the hightech urban environment.

The development of urban space in the information era covers a wide range of theoretical and applied issues, the research of which is based on such concepts and basic scientific categories as “system,”

“development” and “space.” The geographical content of each of them is filled with many concepts, terms and causal relationships. Geographical objects as territorial systems have considerable potential for revealing the content of these basic scientific categories. A vivid example of such territorial systems is a city.

Based on the fact that “territoriality, attachment to the territory is a direct indication of geographical research and geographical objects, the juxtaposition and overlap of different types of space is obvious”,¹⁵⁰ therefore we consider the urban space as a component of the geographical space. Both natural-territorial and social-territorial systems are not possible outside the “place.” Territoriality is one of the most important features of such formations. Although modern cities mostly remain, rather, a discrete form of the society territorial organization, they also consist of separate territorial parts (subsystems), and are also territorial components of larger

¹⁵⁰ Rudenko, L. G. (ed.) (2005). Ukraine: the main trends of interaction between society and nature in the 20th century (geographic aspect). *Institute of Geography NAS of Ukraine; Kyiv : Akadempriodika*. 320 p.

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geographical objects. The elements of the city socio-territorial system are characterized by such territorial parameters as different degrees of accessibility, territorial configuration, territorial concentration, etc. It is obvious that the mentioned territorial parameters significantly affect the development of a specific urban settlement.

The issue of spatial development, as well as urban development based on the principles of “balanced spatial development,” was reflected in the main paradigm of the 21st century—sustainable balanced economic, social and environmental development. The study of sustainable development problems of the settlements, especially cities, is now one of the core of scientific substantiation areas in the planetary of sustainable development concept.

On the one hand, sustainability of the settlements development is often one of the leading topics when discussing in scientific circles the possibilities of global transition of modern civilization to a model of sustainable development. Today, it is not possible to have a professional discussion on the issue of sustainable development without the participation of urban planners. The concept of sustainable development of settlements has developed into an independent branch of both theoretical and applied orientation, which is now perceived by scientific community as a natural and integral part of the paradigm of sustainable economic, social and ecological development of our planet.

Incidentally, we note that the project “Sustainable Development Strategy of Ukraine until 2030” clearly defines among the operational goals “to make cities and settlements inclusive, safe, sustainable and balanced.”¹⁵¹ A significant part of the tasks identified in the Strategy Project resonates with principles of the “Smart City” organization. In particular, those tasks which deal with the implementation of ecologically balanced transport systems, systems of integrated waste management, the functioning of the early population warning systems about natural and man-made threats, etc.

¹⁵¹ *Strategy of sustainable development of Ukraine until 2030 : Project 2017.* (2017). Kyiv, 110 p.

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Business entities, management bodies, social groups, individuals and even technical systems can be conflicting parties in the urban system. As mentioned above, urban conflicts most often arise as a result of aggravation of contradictions in the urban development system. Even different types of city development, i.e. territorial, demographic, functional and socio-economic development, can conflict with each other. Competition between entities can also lead to a conflict situation. However, in our opinion, competition should not be equated with conflict, i.e. by itself, competition between subjects for improvement of functioning conditions within the urban space, for development resources, or achievement of a certain reality state does not necessarily lead to conflict. The main distinguishing features of competition and conflict are that in competition each subject acts "on their own turf," and also that actions to ensure success are positive in nature. An interesting aspect of this issue is the competition between cities as economic systems, or the images and brands of cities. This issue requires a separate study.

The transformation of the industrial urban landscape began at the beginning of the 20th century, and in the second half of the century, such transformations significantly intensified. Restructuring of the economy did not take place on a national scale, but was widespread in many countries. In addition, the periods of time during which innovations become obsolete became shorter and shorter, which formed a typical modern idea of the cyclical nature of changes, for example, in fashion, as well as the dulling of the citizen's sense of novelty. The durability of urban forms, which was previously considered something self-evident, has moved into the category of unnatural. It is significant that throughout the 20th century avant-garde architects dreamed of a "moving city" consisting of "portable" structures and "mobile homes." Another approach was formulated in the 1920s by constructivists, particularly the Bauhaus school of architecture. Its essence was to use new materials and design methods to create multifunctional spaces. By the early 1960s, the creation of a "flexible" urban environment was increasingly seen as a fusion of

modernist principles of multifunctional design with new media and computer technology.¹⁵²

Both of these phenomena: the “replacement of people with numbers,” which Friedrich Kittler considered the main result of the modern media activity,¹⁵³ and the regularization of urban space, giving it controlled forms, have grown tremendously due to computerization of the culture. The transformation of the 19th century “statistical society” into the “cybernetic” society of the 20th century fundamentally changed the relationship between information and matter. Digital space of the city, with its priority of mobility in modern society, can reflect not only the new social freedom, but also comprehensiveness of the control mechanisms. The characteristic of digital technologies feedback is easily transformed into a functional totality which surpasses the primordial idea of urban unity.

The role of geography is also invaluable when studying the environmental conflicts in urban space. Cities are the main localization centers of contradictions between humanity and natural environment. First of all, this concerns industrial centers, hubs and agglomerations confined to large cities.

Recalling the ecological conflicts in the urban space, we should note that for its development city consumes resources, which are created in the vast spaces of natural complexes, with areas incomparably larger, compared to the city. And at the same time, the main part of toxic industrial waste and household waste is produced in the cities. It is well known that about 80% of global carbon dioxide emissions is produced in cities, which is the main factor of the greenhouse effect. Urban environment is not able to assimilate the mass of waste, because its ecological capacity is incomparably smaller than anthropogenic loads, therefore the technogenic tension in cities is constantly increasing.

¹⁵² McQuire, Scott. (2014). Media city. Media, architecture and urban space. *Moscow : Strelka Press.* 440 p.

¹⁵³ Kittler, A. Friedrich. The world of the symbolic is the world of the machine. URL: http://www.intelros.ru/pdf/logos/1_2010/2.pdf

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Thus, digital technologies can be most effective in preventing and resolving energy conflicts in the urban environment, when the conflict situation is created at the human-machine and machine-machine levels. Increasing the level of infrastructure and urban processes regulation, for example traffic, will contribute to a certain degree to the avoidance of energy conflicts. At the same time, resolution of social conflicts between the representatives of different interests and directing their destructive potential in constructive direction requires social communication between the conflicting parties and application of methods of integrated urban development.

AFTERWORD

In the 21st century, the problem of balance has become a cross-cutting issue for all spheres of society. At the same time, when shaping the appropriate policy, it is necessary to take into account the unique features of the territories where its implementation is intended. In this context, given the whole range of characteristics, factors and elements, urban space management means setting extremely challenging tasks.

Urbanization processes, globalization impacts have not only provided additional opportunities for providing the quality of life, but also caused such challenges as excessive concentration of population, anthropogenic load on urbanized ecosystems, and distortion of landscape aesthetics.

Awareness of the relevant risks and threats at the global level took place in the second half of the 21st century and led to a gradual shift towards the formation of an environmentally and socially friendly urban environment. Many years of experience gained within the framework of the UN-Habitat Program and other UN programs and strategies were eventually consolidated in the *Goal Making cities and human settlements inclusive, safe, resilient and environmentally sustainable* of the 2030 Agenda. Speaking about the modern understanding of the city at the global and pan-European levels, we should consider the principles of complexity, resource efficiency, technology, inclusiveness and creativity. In developed countries, those principles are successfully implemented, contributing to the “production” of space, comfortable and favorable for all residents and guests of the city.

Reflecting on the development of Ukrainian cities, the authors also took into account the long traditions of Soviet urban planning, consequences of the transformation period, and, obviously, the most intense results of neoliberalism. The absence of sound development strategies and steps for their implementation over many years has led, on the one hand, to the outflow of population from cities where the acuteness of social, economic and environmental problems is the

highest, and on the other hand, to the uncontrolled growth of the capital city and its suburbs. The mechanisms of public involvement in the process of decision-making and territorial planning also proved to be unusual. However, the development and implementation of strategies requires not only understanding the issues of urban development in general and the specifics of a particular city. A necessary component of the strategy is a set of indicators needed for its further monitoring, and, obviously, a set of key indicators which would make it possible to compare the development parameters of the different rank cities at the national and later—at the global level.

Therefore, one of the key issues addressed in this publication is the assessment of the balancedness of Ukrainian cities. The development of the methodology takes into consideration the sets of indicators used by the UN and EU countries, as well as the best practices of urban development. In particular, it is about: the level of selection and processing of indicators; criteria for such selection; political and legal instruments; participants in the selection and use; principles of the selection; priorities; scope of balancedness assessment, and extent of the indicators aggregation. Finally, the proposed assessment is based on quantitative (indicative) and qualitative (perceptual) components. Thus, information on environmental, economic, social, and accessibility aspects was processed in the context of large, medium, and small cities of regional significance in the regions of Ukraine.

According to the indicative approach, the undisputed leader in the development of balancedness is the city of Kyiv. Cities Uzhhorod, Ternopil, Lviv, Kherson, Dnipro, Khmelnytskyi, and Vinnytsia are also among the most balanced cities in this group. Among the medium-sized cities in terms of balancedness, the satellites of Kyiv—Irpın, and Brovary— should be recognized, and the most balanced small city among the analyzed was Yaremche, followed by Morshyn, Bucha, Chop, and Truskavets.

According to the results of the survey, the only city present in the TOP-3 leaders in all components is Lviv. The capital is expectedly not among the leaders in terms of environmental living conditions, Kharkiv

is seen as a city with good economic and social conditions, Ivano-Frankivsk is associated with a favorable environmental situation, and Odesa is seen as having an attractive cultural and spiritual environment.

It should be noted that the results obtained using the indicative and perceptual approaches are quite similar. In particular, according to the overall assessment of balance, among the top ten 6 cities received similar ratings, five cities—in the assessment of environmental conditions, and three cities occupy the same positions in the economic and social blocks. However, there is a significant concentration of respondents' answers on several cities, which have a certain established public opinion regarding their environmental, social, and economic attractiveness, etc.

Special attention is paid to the concept of urban development inclusiveness. Its appearance in the scientific and political discourse is relatively recent, but now the principles of inclusiveness and cohesion are widely declared in the UN documents and EU policy documents. In a broad sense, it is worth talking about overcoming inequality and sometimes the “injustice” of space. In practice, as a rule, it is about promoting the mobility of different groups of the population, the formation of public spaces, and ensuring the accessibility of various social infrastructure facilities.

The studies of inclusive development conducted in Ukraine point primarily to the significant advantages of large cities, and especially Kyiv, in terms of targeted development strategies and programs, city budget resources, potential investors for urban development projects, interested public, research, and international organizations that deal with the development of space and implement European practices of inclusiveness. At the same time, even in the capital's neighborhoods, to some extent, there are gaps in the provision of social infrastructure, parking for people with disabilities, parking, insufficient quality, and accessibility of public spaces. They are partially taken into account in the planning documentation, and will obviously be overcome over the next decade.

The full-scale war launched by Russia in 2022 has already caused significant destruction of the urban environment. Kharkiv, Sumy, Mariupol, Zaporizhzhia, Chernihiv, Sievierodonetsk are only a part of the long list of Ukrainian cities that will require comprehensive revitalization. Obviously, the reconstruction should be based on the new approaches in the area of security, environment, and social needs. In addition, a balance will be sought between the speed of recovery and the preservation and often improvement of the aesthetics and functionality of urban spaces.

Referring to the general vision of the Ukrainian cities' development on the principles of balance, it is necessary to stop on several fundamental provisions, adherence to which is a mandatory obligation in the realities of the 21st century.

First of all, we are talking about the imperative of environmental friendliness, the introduction of which is associated with a whole range of measures to improve technologies for cleaning discharges and emissions, waste management, the presence of an environmental component in all planning documents, and decisions, raising public awareness.

Another emphasis is to ensure the comprehensiveness of urban development at all levels, from national to local. The basic principles for such actions are laid down in the State Strategy for Regional Development 2021–2027, but they still have to be extended to the development strategies of individual cities and, probably, in the corresponding state programs. Another necessary step in this direction is to update the General Planning Scheme of Ukraine.

Most Ukrainian cities have needed and will need radical measures in the economic area. It is about ensuring compliance with the requirements of post-industrial society, development of creative industries, branding, innovative nature of production, and expansion of city functions. Planning in the global context and growing integration into international transport networks are also relevant for big cities.

Turning to the issue of transformation of the internal environment in Ukrainian cities, it should be noted that for most of them this process

had just begun before the war. This is where inclusiveness and mobility come to the fore, which still remain largely unattainable characteristics of Ukrainian citizens' life. Current trends include unregulated construction, the creation of isolated elite neighborhoods or social facilities, limited opportunities for cycling, etc. More attention should be paid to the organization of green areas, applying the criteria for quality and accessibility developed in the EU and tested in European cities. An important guideline is the preservation of cultural and historical heritage and traditional buildings.

To some extent idealism for Ukraine, but such as shaping the global agenda are the well-known principles of new urbanism, so adherence to them should be gradually ensured in Ukraine to improve the quality of life of its citizens.

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UKRAINIAN CITIES: THE SUSTAINABLE DEVELOPMENT ON THE EVE OF FULL-SCALE RUSSIAN AGGRESSION

While assessing the balance using selected indicators and their parameterization, quantitative approaches were combined with considering public opinion, the shared vision of sustainable urban development, and some problems of ensuring this balance based on a participatory approach.

