

# СОЦИАЛЬНО-ЭКОНОМИЧЕСКИЕ ПРОБЛЕМЫ ПРИРОДОПОЛЬЗОВАНИЯ И ГЕОЭКОЛОГИЧЕСКИЕ РИСКИ

---

UDC 379.8+373.24(477-25)

K. KAZANTSEVA

## ANALYSIS OF DESIGN OF CHILD RECREATION LOCATIONS IN KYIV-CITY

*Taras Shevchenko National University of Kyiv  
Geography Department of  
Chair of geography of Ukraine. Kiev Ukraine  
[djanaia@ukr.net](mailto:djanaia@ukr.net)*

*This article analyzes the situation on design of objects of daily recreation in Kyiv. We consider the crowding for kindergartens and schools in the city. We investigate the importance of developing new models for stochastic design. The model optimizes placement centers for children's recreation. For creation the models for improving modern complex of geospace, the analysis of current state and research and of all planes of urban landscape should be done.*

We consider the importance of improving methods of urban development and spatial planning. In addition, we research the main factors of not uniform kindergartens and schools filling. These studies are conducted to establish the rational land use and make the modern city-space features more optimal, more affordable. Moreover, if it possible, we use the design concepts of sustainable development.

Analysis of theoretical material confirms the importance of improving methods of projecting. The most common study of cohesive urban development from the standpoint of geographic, socio-demographic and urban problems. These issues are discussed in the works of Baransky M.M., Barhin M.G., Belokon Y.M, Borschevsky M.B., Bocharov Y.P., Vadimov V.M., Vasenin L.F., Vasylykivsky V.S., Hlasychev V.A., Demin M.M., Zaslavska A.T., Kogan L.Y., Kushnirenko M.M., Lavrik G.I., Makuhin V.F., Markov Z.Y, Nahinska V.S., Ositnyanko A.P., Panchenko T.F, Timokhin V.O., Filvarov H.Y, Fomin I.O., Horev B.S., Janitski O.P., Yarygina Z.M. Abroad this issue developed in researches of S. Benevski, I. Benhlenski, D. Wirth, F. Clark, P. Merlin, D. Harvey, R. Murphy. The planning problems of urban centres are considered in work of Y.P.Bocharov, Y.M.Holyk, O.K.Kudryavtsev, V.A.Lavrov, B.S.Pronin. Development of this problem with the use of systematic methodology in studies conducted by A.E. Hutnov, G.N. Zubkov, G.I. Lavryk, I.H. Lezhava, L.P. Panova, O.I. Synhayivska; the problem of their function in relate to the social infrastructure of the settlement reflected in the works of M.M.Habrel, M.M.Domin, A.M.Pleshkanovska, Y.Y.Klyushnychenko, I.A. Fomin; abroad similar studies were conducted by K.Alexander, K.Docsiadis, V.Krystaller, A.Losh, D.Stewart. The problems of service formation abroad developed F. Giberd, W. Grun, L. Smith, W. Raily.

It should be noted, that most of the investigations on the design of complex urban landscape are not take into account modern plane space, what is relatively new as separate components of urban development.

**Introduction** In today's world, quite clearly there is a problem of rational use of the territory. Especially difficult to design a modern city, where the space should use in radial compliance with the concepts of sustainable development and availability of space. An example of the lack of rational design can serve the city developed by laws of pseudo-urban planning. In such cities construction is unsystematic without considering the potential of the territory, the pressing into landscape and rationality of object accommodation and use of resources. That is why we explore the status for ensuring the rational distribution of child recreation centres.

A large number of settlements of Ukraine have not adopted urban development projects. But even those cities that have the city development general plans do not follow it. Kyiv-city stands an example of chaotic development that is being projected without optimization techniques resettlement of the population and the real needs of the population. It leads to a critical shortage of places in kindergartens and schools. Developers do not allocate areas for daily recreation and leisure. They do not taken into account capacity roads, parking spaces that leads to congestion, which makes a significant deterioration of the ecological situation in the city.

**Goal.** This work has the purpose to analyse the need of Kyiv in the development of new techniques in the design of modern youth housing complexes with regard to the needs of the population in daily children's recreation locations. This methodology should take into account the current situation and a number of dynamic, stochastic data.

**Tasks**

- 1) to investigate the current situation of kindergartens congestion.
- 2) analyse whether to modify the general plan of the city
- 3) assess the feasibility of developing a new design.

**The object** of the research is the city of Kyiv

**Purpose of the study** is design of daily recreation location in Kyiv.

Every year geospace of Ukrainian cities greatly transformed by rapid chaotic developments. Most developers do not consider the rational needs of the population. Urban space changes very fast and excluding the potential types of natural landscapes. For the most part, it converted for living area without projecting servicing infrastructure. Today, it not even considering the preliminary analysis and design area of the city, taking into account potential natural landscapes and rational allocation of resources and the possibility of improving already converted urban landscape.

We analyse the existence of child recreation centers and consider the demographic situation in the city. The population and age structure are the main criteria indicating the needs for such centre.

It is well-known, that architecture is the spinal column of urban geospace which is complemented by sophisticated elements, which forms a new plane of perception of the city. In this paper we consider the quantitative component of architecture, speed and expediency of increasing of various types of buildings.

Kyiv has the highest population growth in a natural and mechanical ways. According to the Department of Statistics in Kyiv in January-June 2016 the population increased by 2,134 persons. Due to natural increase and migration 1,921 person increase in population by 213 people. However, statistics takes into account only officially registered population. In fact, the population is growing much faster due to migration. Also it takes not into account people living outside the city, but in Kyiv agglomeration. Due to such growth of Kyiv metropolitan area, it is important to pay attention to design and optimize the use of the territory. The city comes a huge number of apartment complexes and barely attention is paid to the development of the service sector. If it does not pay attention to it in a few years and so overcrowded kindergartens and schools just cannot physically accommodate a demand.

In January-June, the number of births increased by 730 persons compared to the same period last year and amounts to 17,387 people. Most babies born in Darnytsa area – 2469 people, the smallest in Golosievo – 1215 people. Number of deaths in the city decreased from 15,819 people in January-June 2015 to 15,466 people in January-June 2016. The most significant value of natural population decline over the period of 1209 persons in the Shevchenko district [2].

Quite conventionally city is divided into two types of regions based on old isolation areas. Depends on the type and style of building and mostly the age structure of the population. That affects the number of child population and the need to create or improve children's recreation centres. This division of the city quite easily explained geographically. Initially absorbed and transformed landscapes requiring technological efforts. At present, the modern districts created on marshy types that require the complex engineering solutions.

City distributed in 'young' and 'old' areas. In the central regions dominated by an aging population. They have a high mortality rate. Areas around have many new developments. In new residential complexes dominated by young people. At the age structure of the population of peripheral areas dominated workforce. This leads to high levels of fertility.

For better perception, we present the data using schematic maps. There you can see the central part of which is more 'older', which prevails not high-rise buildings and uninhabited fund. The areas and districts that are on borders have a great altitude, density of buildings and almost immature infrastructure, especially social issues including the children's recreation.

(Schematic map. Distribution of areas by age)

At present, it is necessary to change the approach to city development, as this may cause a number of problems in the service of the city. Most buildings in downtown areas built on the former site infrastructure despite the hygiene requirements, capacity of roads, green areas.

Kyiv has enough density buildings, which is constantly increasing. Every year reduced the number of parks and green areas. Destruction of green space the city is the main environmental problem.

It is also important to pay attention to construction around the city. Nearest towns grow with modern youth quarters with multistore buildings. However, these projects do not include the place for kindergartens and schools. At the moment there is a need for institutions of a private nature, since the state can no longer meet the needs of the population.

Kyiv ranks second among the regions of Ukraine for the commissioning of residential buildings. The eighth of the total area of residential buildings constructed in Ukraine in 2015 is located in Kyiv. In 2015 in Kiev there put into operation 1,365.8 thousand m<sup>2</sup> of total area of residential buildings, which is 59,0 % more than in 2000 and 6.1 times more than in 1950. In the previous year on 10 thousands people there were taken into operation 4782,3 m<sup>2</sup> total area of residential buildings. Housing of the city is growing and by the end of 2015 it was 64,9 mln.m<sup>2</sup>, that is 2203,6 m<sup>2</sup> more or 3,5 % more than at the end of 2014.

In January-June 2016 in general, the business developer in the city has been commissioned residential buildings with total area of 293.5 thousands m<sup>2</sup>, which is 34.8 % less than was made in the same period a year before. In erected in January-June 2016 residential buildings there put into operation 4011 apartments [2].

If you take the section of developing, there clearly traced demand for one-bedroom apartments have been handed over 1965 apartments. Difficult social and economic conditions reduce the purchasing power of the population and are mostly in need of social housing. However, quite a large percentage are two-bedroom apartments – 1216 units. The smallest project developers for large apartments that cost in some areas exceed the cost of a country house. During January-June 2016 was put 685 three-room apartments.

In the city mostly there was built multi-storey residential buildings. The total area of new residential buildings that have 13 or more floors, is 83.6 % of the total for the commissioning

of 226.7 thousand m<sup>2</sup>, including 16-storey and above – 77,8 % (211.1 thousand m<sup>2</sup>), 13–15 – storey – 5,8 % (15,6 thousand m<sup>2</sup>). Constructed housing equipped with running water, sanitation, hot water, heating and in apartment buildings installed elevators and chutes.

However, these building complexes rarely take into account the areas for rest, recreation and the psychological needs of people in the urban landscape; it does not dare to how comfortable a person feels in such a density.

The demand for residential developing only increases every year but now it is necessary to design facilities maintenance. Today, projects of residential complexes need not take into account the population of green areas and parking places and rest. Most non-residential buildings allocated as the entertainment and shopping centers. Table 1 shows the characteristics of the service sector establishments have been taken into operation in the last three years. It makes possible to monitor subsidence in 2014 and a slight increase in 2015. However, considering that in 2015 the city's population increased by almost 20 thousand, and the number of places in pre-school and general educational institutions was put over this period is not be able to meet the needs of the population.

**Table 1 – Place of service sector, accepted for operation [2]**

	2013	2014	2015
Preschool and extracurriculum, spaces	826	466	530
Secondary Schools, student places	1125	720	304
Healthcare facilities, hospitals beds	80	15	71
Outpatient clinics, visits per shift	818	230	–
Buildings shopping centers m <sup>2</sup> of retail space (including entertainment venues)	67191	22891	14621
Shopping malls, department stores, shops m <sup>2</sup> of retail space (the nature of the product)	77067	55135	98928
Sports halls, m <sup>2</sup> training area	35641	5744	–

Overall, the city operates 596 preschools that serve mostly and daily recreation centers to serve the more than 100 thousand people, and 496 general educational institutions, which in turn serve the 266.1 thousand persons.

Over the past two decades, the number of secondary schools of the capital increased by 24.6% and the number of students in them decreased by 23.9%. As a result, in Kiev secondary schools students enrolled in one shift. The dynamics can be seen in Table 2. Slightly increased the number of students over the past two years, particularly driven by mechanical relocation of the population. However, it should be noted that not completing school uniform. So 'young' dense settlement areas with positive population growth have an excessive number of students, and the 'old' in outlying areas have inadequate. Also on uneven filling influenced by such factors as accessibility, rating, image, schools and more.

**Table 2 – Changes in the number of general education schools and number of students in 16 years [2]**

	2000/2001	2005/2006	2015/2016
Number of institutions, units	497	534	496
including daytime	485	523	485
The number of students in schools, thousands.	327,0	261,1	266,1
including daytime	320,6	256,6	263,0

At the beginning of the 2015/16 academic year, for the first time there were 31,8 thousands of first-graders. To arrange care for pupils in junior secondary schools there work 2612 groups of extended day. Those groups of children need the restoration of psychological and physical condition. In most cases, daily recreation for children of this age involved extracurricular groups that operate in schools.

But this day in the city there are 11 evening schools, serving for 3.1 thousands students. If fails to consider the establishment of pre-school and schools then the most schools will be forced to switch to two mode changes. And the operation of the leisure clubs will be impossible.

**Conclusions.** Therefore, Kyiv city needs a rapid change in the approach to development. It is necessary to develop new design methods that will more bending and stochastic. At present, the closed linear models cannot describe the dynamic development of the city. We should use open models, which are constantly updated and adjusted depending on the social and economic factors and quickly adapt to the force majeure.

Currently the city has an acute need in developing advanced network of social services including schools, kindergartens and children's center's of daily recreation. This network should clearly take into account the current needs of the population and reasonably predict the need for these facilities in ten and twenty years. Therefore, we are developing stochastic model.

In this paper, we analysed the current position of development of elements of geospace for children's recreation. As discussed above, the most modern cities need a transformation of space considering rational placement of objects. This will allow the maximum beneficial use of area based on forecasts of changes in the demographic situation, and rational use of limited land resources with minimal economic cost.

#### References

- 1 Планировка городов и транспорт: учебное пособие / А.С. Безлюбченко, С.М. Гордиенко, О.В. Завальный. – Харьков: ХНАГХ, 2008. – 156 с.
- 2 Main Directorate of Statistics of Kyiv [Electronic resource] <http://kiev.ukrstat.gov.ua>
- 3 Official website of the Kyiv city council. [Electronic resource] <http://kmr.gov.ua/>
- 4 Official website of the Office for National Statistics of Ukraine [Electronic resource] <http://www.ukrstat.gov.ua>

К.А. КАЗАНЦЕВА

#### **АНАЛИЗ СОСТОЯНИЯ ПРОЕКТИРОВАНИЯ УЧРЕЖДЕНИЙ ДЕТСКОЙ РЕКРЕАЦИИ В Г. КИЕВ**

*В данной статье анализируется состояние проектирование объектов ежедневной рекреации в Киеве. Рассматривается загруженность на детские сады и школы в городе. Исследуется важность разработки новой стохастические модели для проектирования. Эта модель оптимизирует размещение центров детской рекреации. Создание моделей для усовершенствования имеющего сложного геопространства требует исследования современного состояния и анализа всех плоскостей урбаниафта.*

*В работе рассматривается важность совершенствования методов градостроительства и территориального проектирования. Также определены основные факторы не равномерного заполнения детских садов и школ. Данные исследования проводятся с целью в становления рациональности использования территорий и возможности сделать современное пространство города более оптимальным, доступным. И по возможности использовать при проектировании концепцию устойчивого развития.*