



**INTEGRATION PROCESSES
AND INNOVATIVE TECHNOLOGIES**

**ACHIEVEMENTS AND PROSPECTS
OF ENGINEERING SCIENCES**

Collection of Scientific Works

Ministry of Education and Science of Ukraine

KHARKIV NATIONAL AUTOMOBILE AND HIGHWAY UNIVERSITY

Faculty of Transportation Systems

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**INTEGRATION PROCESSES AND INNOVATIVE TECHNOLOGIES:
ACHIEVEMENTS AND PROSPECTS OF ENGINEERING SCIENCES**

(IN FOREIGN LANGUAGES)

**ІНТЕГРАЦІЙНІ ПРОЦЕСИ ТА ІННОВАЦІЙНІ ТЕХНОЛОГІЇ. ДОСЯГНЕННЯ
ТА ПЕРСПЕКТИВИ ТЕХНІЧНИХ НАУК
(ІНОЗЕМНИМИ МОВАМИ)**

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THE ANALYSIS OF CITY GREEN AREAS IN KIEV

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Abstract. The state of greenery in Kiev has been analyzed and presented in the article.

Key words: green areas, greenery system.

**АНАЛІЗ МІСЬКИХ ОЗЕЛЕНЕНИХ ПРОСТОРІВ (НА ПРИКЛАДІ
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Анотація. Аналізується сучасний стан системи зелених насаджень м. Києва.

Ключові слова: озеленені простори, система зелених насаджень.

Green areas are considered to be one of the most important components of a city environment, influencing its town planning and esthetic landscape characteristics. Different ideas on including natural areas into the planning structure of a city have been determined for the whole period of city planning and development history. Some of them are still urgent. More than 50% of the total area of

settlements and about 70% of town districts are covered with greenery uniting separate buildings and their groups into ensembles which form the integrity of a modern city [3].

The problems of green areas have been investigated by such scientists as SH. Furier, L. Lunz, I. Rodichkin and others [3,4,5].

The aim of the article is to analyze city green areas on the example of Kiev.

The formation of a city greenery system is influenced by the relationship between building and spare areas, the amount and quality of the existing greenery; landscape peculiarities, convenient transport and pavement availability. According to different standards a system of green areas is to provide relatively even distribution of greenery over the whole territory of a city irrespective of its functions [5].

Green zones of Kiev and Kharkov and other cities with developed systems of landscape ensembles can be described as characteristic examples of greenery planting systems in large cities.

Kiev is one of the largest cities in Ukraine and Eastern Europe and is famous for its gardens, parks and forests. The territory of the city is about 800 km² and only 42% of the total area is occupied with buildings and structures. The rest of the territory is a large green zone with rivers, ponds and other reservoirs (10 m² per person).

The architectural look of the city is influenced by different natural factors such as the river Dnieper, an expressive relief of the central part of the city, the existing green zones as well as forests surrounding Kiev.

The system of greenery in Kiev has been formed in forests and transformed into forest park zone entering housing zones of the city and uniting district parks, gardens, squares and streets, greenery of organic use with forest park zone and outlying green zone of the city. Greenery of all types inside the city represents about 56, 500 hectares and equals to 67% of the total territory. It is distributed about the city and improves its microclimatic conditions.

Nevertheless, uneven distribution of greenery is considered to be one of the problems which is to be solved (see table 1).

Green areas of common use in administrative districts of Kiev

Administrative district	The square of the territory, km ²	The population, thousand people	The square of green areas	Standards of greenery planting, m ² /person	Providing with greenery m ² /person	Sufficient/insufficient
The right bank of the Dnieper						
Golosejevskiy	156	228,130	1118,78	11	54,46	+
Svjatoshinskiy	110	326,421	264,18	11	8,99	-
Sobmenskiy	40	335,563	320,66	11	10,12	-
Obobnkiy	110	311,173	676,63	11	22,08	+
Podolskiy	34	185,609	218,55	11	12,09	+
Pecherskiy	27	133,762	383,74	11	29,53	+
Shevchenkovskiy	25	222,804	487,07	11	20,83	+
The left bank of the Dnieper						
Darnitskiy	134	301,752	531,97	11	16,11	+
Dneprovskiy	67	342,945	1158,98	11	34,14	+
Desnjanskiy	48	351,193	344,15	11	11,96	+
Total:	751	2739,357	5504,7			

As can be seen from the table, the highest providing with greenery is observed in Golosejevskiy district and the lowest – in Desnjanskiy, Podolskiy, Solomenskiy and Svjatoshinskiy districts of Kiev. Moreover, providing with greenery per person in Svjatoshinskiy and Solomenskiy districts is not sufficient – 11 m²/person [3].

There are 140 parks, 307 squares, 60 boulevards in the city nowadays (table 2).

Table 2

Distribution of green areas of common use in Kiev according to the elements

Administrative district	Parks of culture and rest, number/ha	Parks of rest, number/ha	Special parks, number/ha	Squares, number/ha	Boulevards, number/ha	Total, ha
Golosejevskiy	1/126,32	14/475,12	3/466,5	22/42,18	6/8,66	1118,78
Darnitskiy	1/111,97	11/193,01	–	17/16,4	2/22,77	531,97
Dneprovskiy	3/724,71	15/388,73	–	16/21,56	10/23,97	1158,98
Desnjanskiy	2/404,71	10/103,67	–	17/19,58	4/4,01	344,15
Obolonskiy	1/11,73	6/476,93	1/118	53/52,86	10/17,11	676,63
Pecherskiy	3/37,88	8/199,31	1/130,5	22/8,59	4/7,46	383,74
Podolskiy	1/8,18	11/176,89		30/22,73	4/10,75	218,55
Svjatoshinskiy	–	11/257,14		28/38,56	6/24,96	264,18
Solomenskiy	2/35,57	13/188,38		39/23,97	6/16,26	320,66
Shevchenkovskiy	3/83,11	17/296,39	2/54,8	63/42,46	8/10,41	487,07
Total:	17/1544,18	116/2755,47	7/769,8	307/288,9	60/146,36	5504,71

On the basis of the data obtained one can come to the conclusion that most parks are situated in Shevchenkovskiy and Desnjanskiy districts and there are much fewer parks in Darnitskiy and Desnjanskiy, but it does not influence the total area of districts greenery planting.

The territories for special purposes including cemeteries, sanitary zones, street greenery and others have been also analyzed and the data are presented in table 3.

Table 3

Green areas for special purposes in administrative districts

Administrative district	Street greenery,	Sanitary zones,	Protective greenery,	Green houses,	Cemeteries, ha	Other territories,	Total, ha
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	ha	ha	ha	ha		ha	
Golosejevskiy	67,6	–	119,7	45,0	80,9	20,0	333,2
Darnitskiy	28,1	–	745,9	–	19,0	–	793,0
Dneprovskiy	166,7	–	999,9	–	136,4	–	1303,0
Desnjanskiy	118,3	–	53,4	0,8	–	–	172,5
Obolonskiy	219,9	–	872,0	0,3	2,2	–	1094,4
Pecherskiy	215,3	–		0,1	7,1	–	222,5
Podolskiy	51,0	–	113,3	226,5	142,5	–	533,3
Svjatoshinskiy	140,3	41,7	88,3	–	8,6	–	278,9
Solomenskiy	181,6	59,8	21,6	1,2	23,5	–	287,7
Shevchenkovskiy	88,9	5,3	12,8	–	27,4	8,8	143,2
Total:	1277,7	106,8	3026,9	273,9	447,6	28,8	5161,7

As there are no unified standards of providing with greenery for special purposes per person it is rather difficult to estimate the sufficiency of the existing green areas for special purposes in Kiev.

Green areas of medical institutions, schools and territories with private houses are considered to be the territories of limited use [2]. They occupy the territory of 11638 ha and equal to 21% of the total green area of the city.

Table 4

Green areas of limited use in Kiev

Administrative district	Residential districts, ha	Collective gardens, ha	Pre-schools and schools, ha	HAE, scientific establishments, ha	Medical institutions, ha	Enterprises, ha	Other territories, ha	Total, ha
Golosejevskiy	603	–	78,0	484,7	46,6	361,4	–	1573,7

Darnitskiy	631,2	412	412	73	2,2	160	200	1298,4
Dneprovskiy	507	220	295,7	80,5	26,7	14,9	–	968,3
Desnjanskiy	416,7	–	81,4	28,4	11,2	430,6	–	1144,8
Obolonskiy	464,7	139	103,2	7,1	18,5	396,7	–	1129,9
Pecherskiy	206,7	–	28,2	1,9	0,2	88,9	–	325
Podolskiy	355	138,5	44,3	1,8	44,7	51,8	2	638,1
Svjatoshinskiy	626,1	103,5	39,7	–	64	497,8	53,8	1384,9
Solomenskiy	1128,5	67,2	93,2	638,1	59,5	601,5	1,4	2589,4
Shevchenkovskiy	472,5	12,8	28,7	–	11,0	60,9	–	585,9
Total:	5411,4	1093,0	865,4	1242,5	284,6	2664,5	77,2	11638,6

The analysis showed that green territories of limited use had uneven distribution over the territory of the city.

According to the standards green area of residential districts equals to 6 m² per person. Actual providing is much higher (table 5).

Table 5

Actual providing with green areas in residential districts of Kiev

Administrative district	Population, ths	Green territories, ha	Greenery standards, m ² /person	Actual providing, m ² /person	+/-
Golosejevskiy	156	603	6	38,6	+
Svjatoshinskiy	110	626,1	6	56,9	+
Solomenskiy	40	1128,5	6	282,12	+
Obolonskiy	110	464,7	6	42,5	+
Podolskiy	34	355	6	104,41	+

Pecherskiy	27	206,7	6	76,55	+
Shevchenkovskiy	25	472,0	6	188,8	+
Darnitskiy	134	631,2	6	47,1	+
Dneprovskiy	67	507	6	75,67	+
Desnjanskiy	48	416,7	6	86,81	+

Despite of the fact that Kiev is a green city most of green areas require reconstruction and reorganization being not able to compete with increasing construction of modern buildings erected on green territories of common use.

Carried out investigation allowed to determine the most urgent problems which are to be solved:

- to redistribute green areas in cities;
- to work out measures for reconstruction of the existing green areas;
- to create engineering infrastructure on green areas of common use;
- to repair roads and paths in parks, squares and other green areas.

The solution of the problems will allow create more comfortable environment for the residents of large cities in Ukraine.

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