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Analysis of the recreational resources of Kaniv in the context of the programme of development of Ukrainian small-cities

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Abstract. The purpose of the article is to highlight the problem of using the potential of local territory in the processes of promoting local uniqueness as a consumer product. This study aimed at analysis and appraisal of the recreational resources of Kaniv for the organization of recreational activities in the planning strategies of the city as a recreational and tourist center.

The study of the entire set of recreational resources of the city resulted in a constructive analysis and evaluation of the recreational benefits of the city's resources. In the course of the survey, the directions of recreational environmental management in the city were determined in accordance with the programme of development of small Ukrainian cities. The analysis and assessment of the territory's resources was conducted using integrated methodologies of studying recreational assets that take into account the evaluation methods of medical geography, recreology etc. Our study found that geomorphological, climatic, water, biotic, and landscape recreational natural resources are significant for the organization of recreational activity in the city and which, according to the estimation of recreational favourability, are highly conducive and convenient for both winter and summer recreation. A number of indicators of natural resources are of high value for the treatment and prevention of a wide range of diseases, including problems with respiratory, cardiovascular, nervous systems. The development of recreation and tourism in the city is also influenced by the existing historical and cultural resources, which include a whole set of archaeological, architectural and historical monuments, ethnographic features and crafts, museums and exhibitions, places and areas of significant events, places of life and creativity for prominent personalities, heroes and figures, etc. The socioeconomic resources and infrastructure of the city have a significant impact on the functioning of the recreational affairs, such as the state of the existing and prospective territorial organization, transport accessibility and level of its development, the public service and its condition (food establishments, residence, etc.). Nowadays, Kaniv is characterized by partly lower indicators of socio-economic development, business activity and, at the same time, enjoys a powerful natural, recreational and tourist, historical and cultural potential. Development of recreational and tourist activity in the city should be considered as a tool for increasing economic indicators (employment, business activity and growth of its financial indicators) and improvement of demographic indicators (reduction of labour migration, etc.), etc. The natural and cultural heritage of Kaniv is a source of socio-economic and human development through the integration of cultural monuments into the national tourist network. This can be achieved through the creation of new museum programmes, the development of a network of establishments based on authentic cuisine, traditional interiors, etc. It can further be promoted through creation of a network of ecological trails and routes which give access to the area's unique natural ecosystems. Recreation and tourist activity can also be encouraged through popularization of environmental affairs, creation of programmes for development of the resort business, programmes of family recreation, development of different types of water, hiking, educational (culture, events, research, etc.) and eco-tourism, and the development of programmes and events in the field of sport fishing and hunting.

Keywords: development of small-cities, recreational resources, recreational favourability, recreational activity

Аналіз рекреаційних ресурсів міста Канева в контексті програми розвитку малих міст України

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Анотація. В статті розглядається проблема ревіталізації малих міст України через використання місцевої унікальності та ідентичності міста при створенні іміджу в процесах просування локальної індивідуальності як споживчого продукту. Сучасний підхід в плануванні місцевого розвитку будується на розумінні природних, історико-культурних, етнографічних, туристичних

ресурсів як суми економічних активів, що здатна зробити прямий та опосередкований внесок в економічний розвиток малих міст. Мета статті обґрунтовується підходами сталого природокористування в містах, як інструменту підвищення показників соціально-економічного та людського розвитку, і, як результат, покращення якості та комфортності життя містян. Метою дослідження є конструктивний аналіз та оцінка рекреаційних ресурсів території міста Канева та його околиць для забезпечення формування програм організації та розвитку рекреаційної та туристської діяльності і стратегічного планування розвитку міста Канева, як рекреаційного та туристичного центру. В ході дослідження виявлено та проаналізовано потенційну сукупність рекреаційних ресурсів міста та оцінено їх рекреаційну сприйнятливість, з'ясовано напрямки існуючої рекреаційної діяльності і встановлено перспективи рекреаційного природокористування. Аналіз та оцінка рекреаційних ресурсів міста здійснювалася із використанням способів комплексних методик вивчення рекреаційної сприйнятливості, що застосовуються в медичній географії та рекреалогії. Результати дослідження вказують на невисокий соціально-економічний розвиток, незначні показники ділової активності попри потужний природний, рекреаційно-туристичний, історико-культурний потенціал міста Канева. Природна та культурна спадщина міста Канева є фундаментом соціально-економічного і людського розвитку через інтеграцію об'єктів та пам'яток в національну туристичну мережу, через інновацію музейних програм, створення мережі екологічних маршрутів, створення програм для розвитку курортної справи, програм сімейного відпочинку та інших видів діяльності.

Ключові слова: розвиток малих міст, рекреаційні ресурси, рекреаційна сприйнятливість, рекреаційна діяльність

Introduction. Analysis of the current world trends of development of urban areas, small towns in particular, involves features of their geographical, environmental, social functioning, planning organization and the impact of urban settlements on the surrounding areas and coverage of issues of implementation of world practice in strategic management of tourism development in the regions. The importance of small and medium-sized cities in regions as centers of significant human capital, balanced management, economic potential, as business environment, cultural, recreational and tourist centers has been highlighted in the research publications of local and foreign authors such as Nudelman V., Boyko-Boychuk O., Edans Ch., Ledri R., Dolishniy M., Mezentsev K. and Mezentseva N., Denysenko O., Dronova O., Nekos A., Mal'ska M. and others.

The study of the recreational resources and tourist potential of territories, complex assessments of favourable recreational conditions of territories, the issue of quality and significance of recreational potential as a basis for the development of recreational and touristic activities is the subject of the research and publications of Preobrazhensky V., Mukhina L., Danilova N., Fomenko N., Lyubitseva O., Smal' I., Stafyichuk V., Baidyk O., Arion O., Kochetkova I., Mykhailenko N., Kulinich M., Holubychna S., Danyl'chuk G., Tsarik L., Chernyuk G. and other authors.

The modern approach to socio-economic planning of local development, which is used nowadays in the processes of revitalization of towns in Ukraine, is based on the understanding of resources (natural, historical, cultural, ethnographic, tourism) as the sum of economic assets that can make a direct and indirect contribution to the economic development of towns (Boyko-Boychuk, 2010., Frenkel', 2018). The main goal of this approach is to create and implement a "creative product" that is considered as the generation

and transformation of creative ideas (using human, cultural, tourism and other resources) into economic potential and consumer product. This approach in modern urbanization processes and socio-economic rebirth of the urban environment uses the local identity of the city, its urban culture, in the creation of a brand in the processes of promoting the local identity as a consumer product.

In Kaniv traditional approaches to forming the directions of urban development (both territorial and socio-economic) and the difficult economic conditions of the late 20th and early 21st centuries have led to the loss of status of a multifunctional industrial city and, despite its rich resource and human potential, the city entered the stages of stagnation and cultural decline.

Natural and cultural heritage give potential for the revival of territories and has strategic importance in promoting sustainable and integrated development of regions and cities. Such development would benefit from the use of such approaches as branding of the city and region, the creation of a special image (cultural, tourism) of the territory, analysis of consumer needs, the development of sustainable and innovative forms of recreation and tourism. The development of a unique and innovative tourism product, creating jobs in the service sector, should contribute to capitalization by investing in tourism services, and attracting various types of resources (human, material, natural, etc.) in new directions of urban development. (Frenkel, 2018).

The aim of this article is justified by the processes of reforming the territorial development of the regions of Ukraine. The concept of sustainable environmental management in cities and the programme of the revival of towns of Ukraine is a tool for increasing the indicators of socio-economic and human development, business activity and, as a result, improvement of the quality of life and

comfort for the citizens. Therefore, a comprehensive analysis with the definition and partial assessment of the recreational resources of the area of research is the purpose of this study, which aims to determine new directions of organization of recreational and tourism activities in planning the strategies of the development of Kaniv, as both a recreational and a tourist center. To achieve the goal set in the research, the following basic tasks were set: to identify the whole potential of recreational resources of the town. To analyze and evaluate the recreational benefits of the town's resources, to ascertain the direction of the existing recreational activities of the city and its outskirts and to establish the perspectives of the recreational environment of Kaniv in accordance with the programme of development of Ukrainian towns.

Material and methods of research. The object of this study is the entire set of recreational resources which are present in the territory of Kaniv and its outskirts. The study is based on the understanding of recreational resources as phenomena and objects of the natural or anthropogenic environment and management system, which have a number of significant properties for recreation, and which can be used in the organization of various types of recreational activities and as a method of recovery of the health and working capacity of the population. These properties include natural and cultural uniqueness, which is a component of aesthetic attractiveness, recreational value and healing qualities of the objects. The decisive feature is that the quality, diversity and correlation of the recreational resources of the town and the region allows recreational activities of varying lengths and independently of seasons to be developed daily, weekly and year-round. In general, in recreation studies, there are three groups of recreational resources: natural, historical and cultural, socio-economic.

The most significant recreational natural resources of Kaniv and its outskirts are geological and geomorphological, climatic, water, biotic (forest, faunistic), and landscape resources. Natural recreational resources also include objects and territories of the Nature Reserve Fund. In addition to natural resources for the development of recreation and tourism in the town, there are also significant historical and cultural resources, such as archaeological, architectural and historical monuments, museums and exhibitions, ethnographic features and crafts, places of residence and creations of prominent personalities, heroes and figures, etc.

The socioeconomic resources and infrastructure of the city make a significant impact on the development and, most importantly, the functioning

of recreational affairs. Socio-economic tourism resources include geographical location and modern territorial organization, transport accessibility and level of its development, the sphere of service of the population and its state (nutrition, hospitality, etc.), labour resources, demographic conditions and a number of others.

An analysis of the favourable conditions of the territory in this study is carried out in accordance with the approaches of socio-economic planning of local development and revitalization of Ukrainian towns, based on the concept of sustainable use of nature. Analysis and evaluation of recreational resources of the territory is carried out using complex methods of studying recreational favourability, which are used in recreational, medical and geographical research. Comprehensive assessment of the recreational enrichment of the available resources of the territory of the city was based on open data of existing open source information. We used the resources of the Hydrometeorological Service of Ukraine and the Kaniv Meteorological Station, resources of State Research-and-Production Enterprise "Geoinform of Ukraine", resources of the State Service of Statistics of Ukraine, resources of the Ministry of Ecology and Natural Resources of Ukraine, etc.

The results and their analysis. Kaniv has unique resources for development and socio-economic rebirth. Under the existing typological scheme, Kaniv can be classified as a city with significant natural, historical-cultural, recreational and health potential. According to the specifics of the employment of the population in various spheres of economic activity, Kaniv counts as an economic center of local importance, the center providing social-cultural, communal and other services and, at the same time, is a historical-cultural and tourist center.

Nowadays, Kaniv is characterized by slightly lower indicators of socio-economic development, business activity, though, at the same time, it has a powerful natural, recreational and tourist, historical and cultural potential. The development of recreational and tourist activities in the city should be considered as a tool for improving economic indicators (employment, business activity, growth of financial indicators of business activity), improvement of demographic indicators (reduction of labour migration), etc. The natural and cultural heritage of Kaniv is a source of socio-economic and human development through the integration of cultural monuments into the national tourist network. This potential can be realized through the creation of new image museum programmes, the development of a network of hospitality facilities

offering authentic cuisine, traditional interiors, etc. and establishment of a network of ecological trails and routes which introduce the visitor to the area's unique natural ecosystems. Important measures in this respect could be popularization of nature protection activities, creation of programmes for the development of resort business, programmes of family holidays, development of different types of water, hiking, educational activities (culture, events, etc.), eco-tourism, and the development of programmes and events in the field of sport fishing and hunting.

Therefore, a clear resource orientation determines the recreational and tourist activities of Kaniv. The presence and high quality of recreational resources are the basis and guarantee of recreational nature use of the city and its outskirts, and should determine its recreational specialization.

The terrain and geological structure of the city's territory is a leading factor in the formation of unique natural conditions that have developed in the city and its outskirts, determining the specifics of urban planning of territories and the organization of nature use within its boundaries. The study and analysis of the geological and geomorphological structure is an important point in clarifying the recreational value of the territory, because the relief and geological structure determine the landscape diversity of the territory, affecting a number of significant recreational, tourist and technological indicators. The analysis and assessment of the recreational value of the territory requires detailed study, description and fixation of the characteristics of its geological and geomorphological structure. Assessment of the suitability of terrain resources for recreation and development of the directions of its use should take into account the likely negative effects of the terrain and the quality of geological sediments on recreational or tourist activities.

The results of the study indicate that a significant part of the city's territory is located within the Kaniv dislocations, which are hilly lowlands with absolute altitudes of 200-220m (max. 255m) with a highly developed gully-arroyo network. The depth of dismemberment of the dislocated area sometimes exceeds 100 m, so it appears mountainous. Significant amplitudes of absolute markings (up to 100-120 m), sediments and storm rainfall determine the development of erosion processes, resulting in a dense and extensive gully-arroyo network (0.4 km/km²). In the limits of the hilly areas of the city, in addition to erosion, gravitational processes are also observed, most often in the form of landslides. All shifts within the limits of the Kaniv Mountains are

divided according to the age of formation into the ancient Anthropocene and modern Holocene (Moroz, 1971, Kudelja, 1971, Palienko, 1971). For example, the economic zone of the Kaniv Nature Reserve, which is situated within the bounds of the city, is located on a landslide pseudo-terrace of the late Anthropocene period, which is penetrated by the deep gullies Bilyashivsky 1 and 2, Rotten Ravine (Hnyla Balka) and others. The anthropogenic shifts are confined to the steep right bank of the Dnieper, with a stepped structure and are immovable (it is possible to observe on Mariyina Mountain, the Great Settlement, etc.). Modern shifts occur most often in the systems of gullies, forming semi-circles with large angles of inclination of the moving surface of the displacement (annual movement from 0.5 to 1.0 m) (Grubrin, 1968, Moroz, 1971, Kudelja, 1968, 1971, Palienko, 1968, 1971).

Significant heights, strong surface erosion, evidence of natural geodynamic processes in the city's hilly area, despite the environmental and engineering negativity of these physical and geographical phenomena, in combination with plant diversity, determine the significant degree of diversity of the territory's landscapes. The expressive physiognomy explains the high degree of aesthetics of the landscapes of the hilly part of Kaniv. The use of geological attractions as objects of excursion display in geotourism and objects of interest in scientific tourism explains the increased attention paid to geological resources.

The primary terrain of the Kaniv Mountains, formed by tectonic movements in the Mesozoic, has not survived through widely developed erosion processes. In the modern terrain formed as a result of neotectonic movements there is a phenomenon characteristic of the Kaniv mountains – overlapping scales structures, which is associated with structural nonconformities in the places of discontinuous deformations accompanied by the imposition of ancient sediments of the Paleogene (scale type structures), Cretaceous, Jurassic on modern Anthropocene (Moroz, 1971, Kudelja, 1971, Palienko, 1971). At the same time, the richness of the lithological composition of sedimentary rocks within the limits of the Kaniv mountains is connected with the folded deformations, which is the lithological basis for the formation of the landscape diversity of the hilly part of the city. Basically, these are Anthropocene sediments loess and loams, fluvio-glacial sands, moraine loams, and sandstones with boulders of crystalline rocks, which are huge (on average 10-15 m), but often interrupted, especially on the watershed ridges and slopes of

the ridge of the southern exposure, the eluvium of the ancient rocks of gravel-sandy composition (Paleogene, Cretaceous, Jurassic).

Lithologic layers and the outcropping to the surface of ancient rocks clarify the geological history of the development of landscapes through the existing paleobotanical, paleozoological artifacts. Exposure of the slopes with the general elevation of the mountainous areas simultaneously has a significant impact on the microclimatic differentiation within the limits of the Kaniv Mountains (recreational value), simultaneously determining the variety of plant species and the spatial and structural wealth of the landscape complexes of the mountainous part. Undoubtedly, geological and geomorphological features influence the optimization and prospects for housing construction, improvement of conditions of rest, and for creation of a comfortable environment, etc.

On the ranges of the Kaniv Mountains, there are natural observation decks which give spectacular views of the surrounding terrain. From the top of the range, there is an overview on the hill's sheltered terrace (north) and mountainous forest-moraine plain (south). From the observation decks of such mountains as Plastunka, the Great Settlement, Chernecha, Lysa, Pylypenkova, Moskovka and other mountains can be seen numerous oxbow lakes, distributaries, straits, the floodplain islands Shelestiv and Cruhlik and the streambed of the Dnieper, which is characterized by intensive steamed processes. A panorama is opened on the picturesque left-bank landscapes of the terraces and wide floodplain of the Dnieper.

The Dnieper River valley within Kaniv and its surroundings is a relatively lower alluvial plain. Four fluvial terraces, high and low floodplain terraces are distinguishable in the structure of the Dnieper Valley. The first floodplain or sandy terrace is manifested as broad strands along the valley and islands in the floodplain, composed of ancient alluvial sands that are covered with pine forests. The sandy terrace is elevated towards the flood plain at $\approx 8-16$ m, absolute marks in the relief reach 120 m. The surface of the pine terraces the Dnieper is a low, hilly plain with dunes and sands. Individual dunes reach the height of 20 m. Deserted areas of sands and dunes acquire mobility. As a result, the nature and intensity of soil nutrition, in contrast to the flood plain of the river valleys, is significantly changing. The level of groundwater is greatly reduced and in the conditions of general lift of the surface background, automorphic soils are formed: sod-podzolic and podzolic. The lifted mountainous terrain and, especially, the lithology of the sediments also condition microclimatic differentiation within

the limits of the pinewood terraces. The vegetation of the pinewood terraces is predominantly composed of psammophytic forest formations, formed by plantations of pine and common admixture of broad-leaved species: common oak, black locust (*Robinia pseudoacacia*), silver birch, common pear, etc. Drought-tolerant cereal grasses or , in conditions of sufficient moisture, the flora of vegetative groupings with moss cover exemplified by fork mosses, haircap moss, etc represents the herbaceous cover on the pinewood terraces. In addition, within the pinewood terraces, the lithological composition of sediments is clearly observed in the nature of the vegetation and, accordingly, the characteristics of the soils. Sandy sediments determine the thermal, water and other physical and chemical properties of the soils of the pinewood terraces, which will directly affect the vegetation. Thus, in the watersheds of the dunes and the slopes of the southern exposure, treeless open areas form xerophytic conditions, which result in the spread of Scots pine practically free of admixtures of other tree species and sharp-leaf willow, and the grass surface consists of dry grasses and spurges with numerous lichens. On the slopes of the dunes of the northern exposition and on the interdunal and lowered areas, the conditions of growth vary in the direction of mesophilicity. Thus, tree layer and undergrowth, in addition to the Scots pine, is represented by broad-leaved species, and in the grass surface there is a greater variety of grasses and cereals, mosses and ground pines (Kupach, 2017, Dem'janenko, 2017).

Within the floodplain of the Dnipro River, the following mesostructures are distinguished: the levees, the high floodplain areas, the oxbow lakes' depressions, and the lower terraced area. Relatively elevated areas composed of sandy sediments of large fractions represent the levees' part of the floodplain. As a result, in the levees' floodplain a xerophyllous forb community with features of steppe species is formed, rather rarefied and unproductive, which causes the development of poor soils. A characteristic species of the levees' floodplain is desert false indigo, which grows densely and forms shrubbery. A variety of forms of microrelief – low ridges, hills, swales, and so on characterizes the central floodplain. The central part of the floodplain consists of, unlike the levee part, sandy sediments of small and dusty fractions, which characterizes the soils as fresh or wet. Bean family plants and cereal flora form in conditions of sufficient moisture; vegetation is rich and highly productive. The terrace near the floodplain and the oxbow lakes' depression, due to the drainage of atmospheric, groundwater and stagnant water, is often marshy. The

lithological composition of the sediments is mostly dusty and muddy, which also causes the development of water retention regime in soils - that is, the formation of waterlogging. In the over-humidified conditions, moisture-loving vegetation of large cereals and carex in alternation with forests of aspen and alder is characteristic.

The geological structure and terrain of the territory is a leading natural factor in the formation of the rich landscape diversity and contributes to enhancing the attractiveness and aesthetic properties of the landscapes of Kaniv. Landscapes of broadleaf forest, mixed-forest, meadow-steppe, steppe, meadow and swamp type represents the landscape structure of the city and its outskirts (Kupach T., 2017, Kupach D., 2017, Dem'janenko, 2017).

The whole set of characteristics of the terrain, geological sediments, vegetation surface, which include amplitudes of heights, the frequency of slopes, the intensity of the dismemberment of the terrain, changes in the exposure and steepness of the slopes, the quality of plantings and landscape diversity affects the formation of landscapes, physiognomy, diversity, contrast, and determines the tourist and recreational favourability of the territory. Table 1 shows the evaluation criteria for the favourable geological and geomorphological and landscape resources for tourist and recreational activities adopted in assessments of recreational favourability (Preobrajenskij, 1975, Muhina, 1975, Kazanskaja, 1975, Vedenin, 1975). The most commonly used is the 5-point rating scale: 1 - relatively favourable, 2 - less favourable, 3 - favourable, 4 - significantly favourable, 5 - most favourable.

The climatic and hydrological resources of

of the Black Sea coast (Shherban', 1962). The maximum values of the duration of sunshine are from May to August (≈ 700 hours), and the minimum are in December (≈ 30 hours), according to the Climatic Cadaster of Ukraine (2006). In Kaniv district, there is also a good number of sunny days is autumn.

Figure 1 shows data on the average actual sunlight duration and the average number of days without sun for each month of the year, which was determined for a long period of observations (according to the Kaniv Meteorological Station). Thus, it can be said that the period suitable for such activities as recreation on the water, treatment and prevention of diseases, active tourism, in particular, hiking, cycling, water, etc., is quite lengthy and includes 7 months: from April to November.

For the autumn-winter season, the formation of misty weather is characteristic of Kaniv and Kremenchug reservoirs. In autumn, fogs lend a picturesque quality (a significant parameter in the ecological and aesthetic assessment of the suitability of the territory) to the flood landscapes along the valley with lake basins, old oxbow lakes and landscaped curtain walls of the mountainous-forested part of the city.

Figure 2 shows the average duration of misty weather for certain months, as well as for the cold and warm periods.

Latitudinal position, duration of sunshine, and the type of vegetation cover within Kaniv and its outskirts strongly influences the formation of a temperature-favourable regime for recreation. The amount of solar radiation per square centimeter of surface annually reaches about 100 kilocalories. However, the distribution and assimilation on the earth's surface of

Table 1. Summary of the results of the degree's assessment of recreational favourability of geological-geomorphological and landscape resources for recreational activities in Kaniv

evaluation criterion	hypsometric indices	horizontal dismemberment	vertical dismemberment	visibility	variety
score	3	3	4	4	4
the degree of recreational favourability	favourable	favorable	significantly favourable	significantly favourable	significantly favourable

the territory have a significant influence on the recreational attractiveness and suitability for different types of recreation, especially in the warm period. The significant amount of sunshine and temperate climate is decisive for the development of recreational use of nature within the city and its outskirts. On average, in Kaniv district, the duration of sunshine annually exceeds 1710 hours, which is closer to the indicators

this heat within the city and its outskirts is extremely uneven and is due to the specific nature of the sediments, terrain and vegetation (Shherban' 1962).

For example, in the hornbeam forest of the mountainous part of the Kaniv Nature Reserve, only 10% of the total solar radiation reaches the surface, and in the pine forests of the terraces of the Dnipro River the total radiation dose varies (depending on the

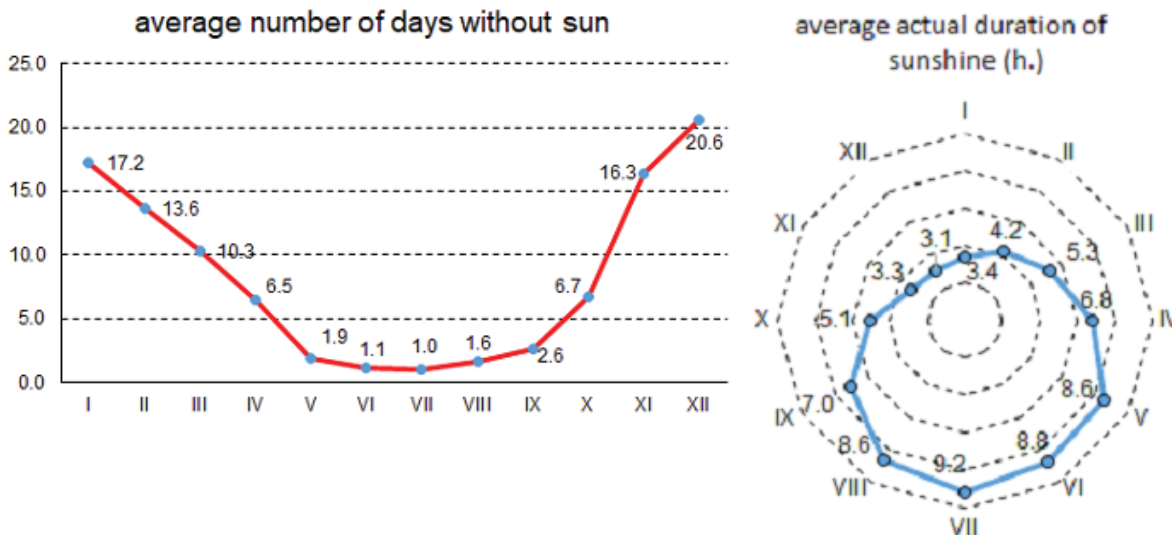


Fig. 1. Diagrams of the average actual duration of sunshine and the number of days without sunshine in the meteorological station “Kaniv» in the years of observations in the period from 1960 to 2010.

time of day) from 40 to 75%.

The nature of the surface also significantly influences the re-distribution of heat in the studied region. Therefore, the absorption of heat will vary depending on the steepness and exposure of the slopes of the Kaniv Mountains. Table 2 presents data on the number of landscaped tracts with different exposures (Kupach T., 2017, Kupach D., 2017).

It is known that the slopes of the southern

suitable for various types of summer recreation.

One of the meteorological phenomena that are obligatory in the assessment of climatic recreational resources, and which has a slightly restrictive effect on recreational activities, is the wind, its speed and direction. In the period of the predominance of low temperatures, the wind enhances heat transfer, which leads to overcooling. In the warm season, the wind enhances evaporation of the human skin, improves

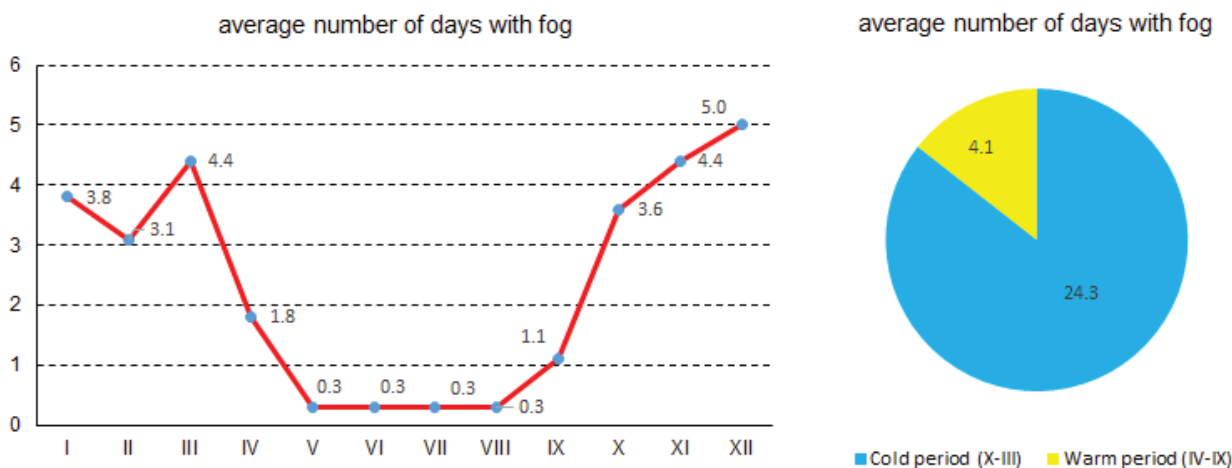


Fig. 2. Diagrams of the average number of days with fogs for different months, during warm and cold periods of the year at the meteorological station “Kaniv” for different years of long-term observations in the period from 1960 to 2010.

exposure and with a steepness of more than 20° absorb the same amount of heat as in the south of Ukraine. Within the boundaries of the city and its outskirts, the tract with slopes more than 20° constitute ≈32%. The thermal regime of the territory is formed according to the nature of the surface and will affect the parameters of climate comfort, the prolongation of the period

the feeling of warmth and comfort. Light wind (3-6 m/sec) has a stimulating and tonic effect on a person’s self-perception. A strong wind (greater than 15 m/sec) has an irritating, tedious effect, complicates breathing processes (Danilova, 1982). Figure 3 shows the dominant wind direction for years of observation and the distribution of the number of days by months of

Table 2. Summary of the results of landscape analysis (GIS-based analysis) on the quantity and part of landscape tracts in the exposure of slopes in Kaniv for the medical-biological assessment of the territory

rhumb	degrees	number, units	fraction, %
N	315 – 45	391630	31.15635
E	45 – 135	336287	26.7535
S	135 – 225	304795	24.24814
W	225 – 315	224271	17.84201

the year with wind speeds below 10 m/sec (Danilova, 1982).

Comfortable indicators (power and speed of wind, direction) of windy weather for carrying out various types of recreational activities characterize the results of the study for Kaniv district.

Figure 4 shows the annual temperatures and the monthly average atmospheric pressure at the station level for a long-term observation period.

In recreational activities, the value of atmospheric pressure plays an important role, since the variability of the pressure indicators affects the physiological and

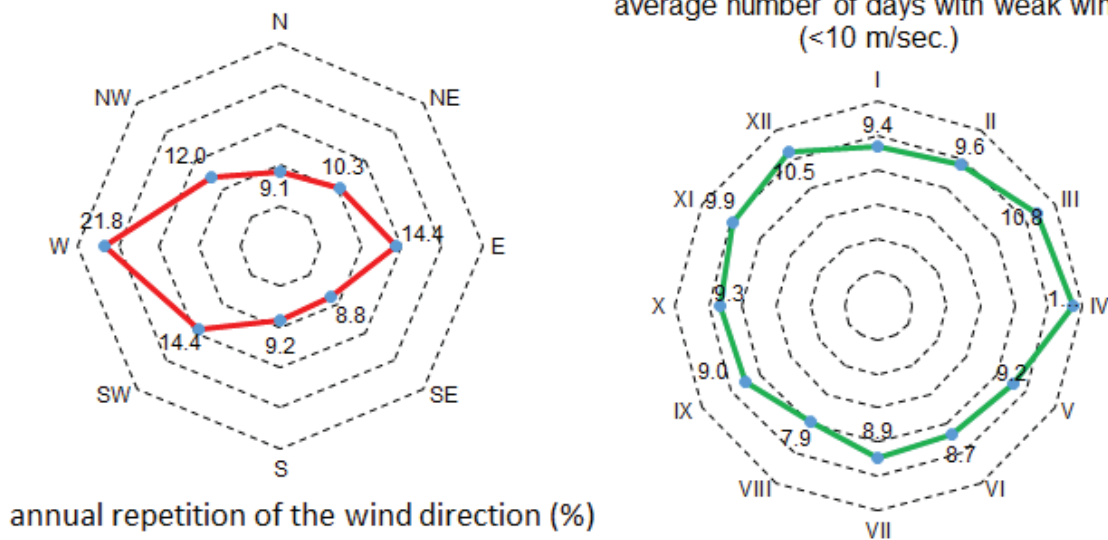


Fig. 3. Graphs of annual repetition of the wind direction and the average number of days with light winds over several years of long-term observations in the period from 1960 to 2010. (Meteorological station “Kaniv”)

On average, the city experiences a temperature of $>+25^{\circ}\text{C}$ for about 60 days. The temperature determines the physiologically comfortable or uncomfortable conditions of the environment, which causes a feeling of warmth with or without signs of overheating/hypothermia .

The most reasonable indicator of climate comfort is the average daily temperature. So, numerous recreational researches establish that the zone of thermal comfort for the summer period is $+15 - +20$ (25) $^{\circ}\text{C}$, for the winter $0 - -10$ $^{\circ}\text{C}$ (Danilova, 1982, Mykhailenko N., 2015, Shherban`, 2015). The average monthly temperature for most of the year is positive and reaches a maximum of $+21.9^{\circ}\text{C}$ in July, and the coolest month in the town is January with a temperature of -3°C . The average daily temperature ($^{\circ}\text{C}$) for all months of the year in the period of observation is given in Table 3.

biological processes in the human body, in particular, the well-being through the meteo-tropic reactions of the organism.

Thus, in a series of studies it was established that day-to-day pressure changes of <5 hPa do not cause express reactions, at the same time, changes within 6-10 hPa become noticeable, and >10 hPa are pathological. A sharp drop or rise in atmospheric pressure during the day is considered to be a change of >8 hPa and a temperature of 4°C (Mykhailenko N., 2014, 2015, Shherban`, 2015, Mykhailenko T., 2014).

The territory of the city is characterized by a more or less equal degree of air humidity, which is also shown in Figure 4. Relative humidity of air is the highest in winter, and indicators of moisture deficit reach maximum in summer. Humidity occupies a special place, because it is an important meteorological element in recreational assessments (Danilova, 1982).

Table 3. Average daily temperature (°C) by months of the year in terms of observation period for individual years of long-term observations in the period from 1960 to 2010 (meteorological station “Kaniv”)

time, hours	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
0	-6.1	-4.7	-0.2	7.2	13.2	15.8	17.3	16.8	12.2	6.5	1.7	-2.6
3	-6.4	-5.3	-1.0	5.9	11.4	14.1	15.7	15.2	10.8	5.5	1.3	-2.9
6	-6.6	-5.8	-1.7	4.9	10.4	13.4	14.8	14.0	9.8	4.8	1.0	-3.0
9	-6.7	-6.0	-1.1	7.4	14.9	18.1	19.3	18.1	12.6	5.8	1.0	-3.1
12	-5.3	-4.0	1.8	11.0	18.3	21.2	22.6	22.1	17.0	9.7	2.9	-2.0
15	-3.9	-2.4	3.5	12.7	19.8	22.4	23.8	23.7	18.6	11.5	3.9	-1.1
18	-4.8	-2.8	3.2	12.5	19.4	22.0	23.5	23.3	17.8	10.2	2.9	-1.9
21	-5.6	-4.0	1.2	9.5	16.2	18.9	20.3	19.3	14.0	7.7	2.1	-2.4
average per day	-5.7	-4.4	0.7	8.9	15.5	18.2	19.7	19.1	14.1	7.7	3.7	-2.4

Humidity influences the formation of thermal conditions of the environment, the exchange of moisture in the processes of acclimatization and adaptation, respiration processes, etc. Therefore, humidity indicators play an important role in establishing the physiological limits of climate comfort for different types of activities. The most favourable condition for people is dry and moderately dry air.

With comfortable humidity characteristics, cold and heat are much more easily tolerated by man . The physiological norm for a person is the relative humidity of air from 30 to 60%. For recreational activities (according to various studies), favourable humidity is 30-80% (Danilova, 1982).

The humidity regime in the city corresponds to an annual precipitation up to 500 mm, a maximum of 742.8 mm, a minimum of 285.5 mm. Prevalence of summer precipitation (up to 40% of the annual amount) characterizes the annual precipitation. The graph of the average monthly precipitation can be seen in Figure 4.

The precipitation patterns are often short-term, intense and torrential. Thunderstorms (May-August, beginning in March-April and ending in September-October) often accompany downpours. Figure 5 shows data on the average number of days with thunderstorms according to the weather station “Kaniv” over many years of observation.

The annual number of days with thunderstorms

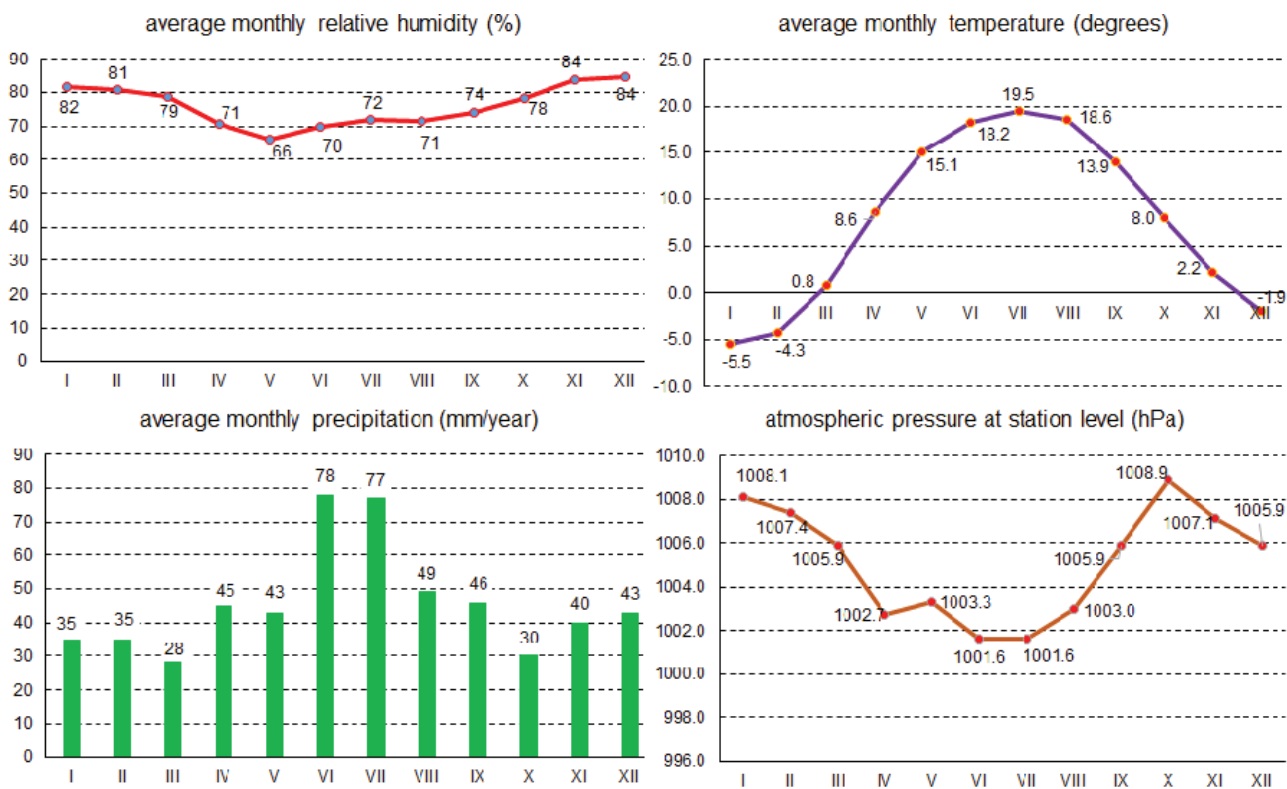


Fig. 4. Annual progress of the main meteorological elements (atmospheric pressure, precipitation, relative humidity and temperature) in the different years of long-term observations in the period from 1960 to 2010 on the meteorological station “Kaniv”

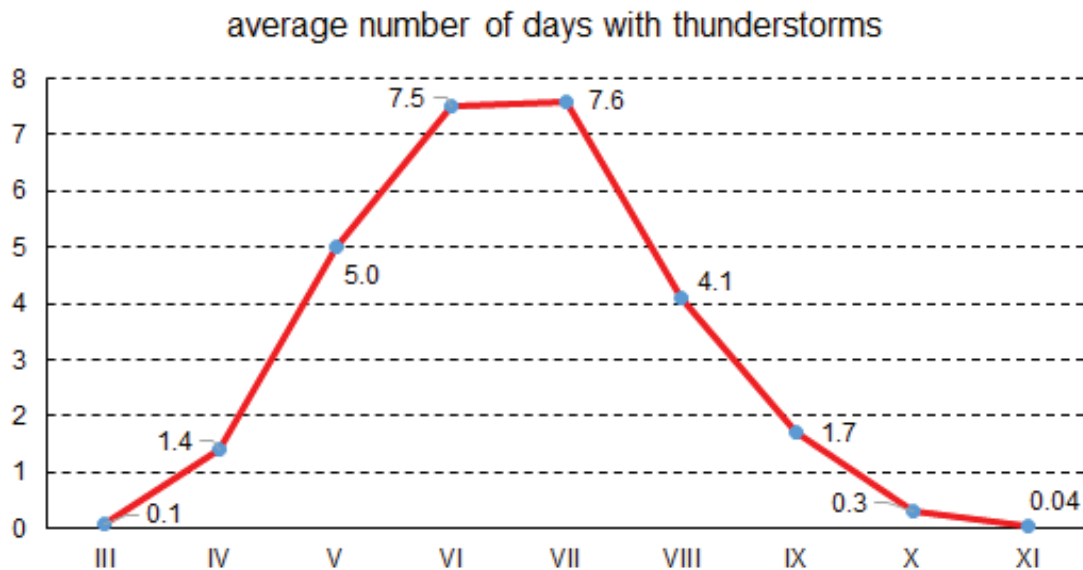


Fig. 5. Average number of days with thunderstorms according to the data of the Kaniv Meteorological Station in the years of observations from 1960 to 2010

varies in different years and is about 19–20 days (close) and 23–25 days (remote). The average annual duration of thunderstorms exceeds 60 hours. Thunderstorms belong to the limiting recreational activity factors although a number of researches indicate that this meteorological phenomenon adds advantages in terms of recreational value because of the health qualities of the air, ozonizing and purifying, making it useful for treating diseases of the respiratory system.

In winter precipitation predominates in the form of snow which forms a stable snow cover. On average, snow cover begins to form at the end of December, although snow falls in November. Snow cover remains on average until the end of March, in some years until mid-April, an average of 77 days (the maximum number of days reached 117). The greatest depth of snow cover within the city is observed on the mountainous part of the Kaniv mountains covered with forests and varies from 20 cm (winters with little snow) to 45 cm (snowy winters). A specific thermal regime of the territory forms due to the influence of surface characteristics (relief, greenery, etc.) on the redistribution of heat. Although the snow cover is sufficient for the development of winter types of active recreation, due to the interference of warm Atlantic air masses in winter, the snow cover decreases with frequent thaws, which significantly reduces the period of recreational favourability.

In characterizing the thermal regime of recreational areas, complex indicators of effective temperature (ET), equivalent-effective temperature (EET) and a number of others are often used in assessment of the favourable climatic conditions and

determining their comfort for recreational activities for. So, the ET indicator takes into account the complex effect of temperature and air humidity and indicates a quantitative relationship between meteorological conditions and human thermal sensation (Danilova, 1982, Mykhailenko N., 2014, 2015, Shherban', 2015, Mykhailenko T., 2014). Table 4 shows calculations of the effective temperature and heat sensation of a person.

Significant amplitudes of heights and dismemberment of the relief forms favourable conditions for an increased flow of rainfall and melt water. Increased flow of surface water leads to good drainage of the upland areas of the city and forms flooding (with bogging processes) along the bottoms of gullies and ravines and leads to the formation of temporary streams: the Melanchine, Komashiny spur, Sukhoy streams, Slyzka ravine, Topylo gorge. Springs of Cretaceous system groundwaters cause partial flooding of gullies and flat confluence of the spurs of ravines. The debit some of them is stable throughout the year (0.2 l / s). The water of the springs has a stable temperature of 10 °C and is of high quality. The indicated distribution of the flow of surface waters determines the specificity of the natural humidity regimes and, as a result, conditions are formed that affect floristic and landscape diversity.

The main hydrological object and water recreational resource of the city is the Dnipro River. The Dnipro is a typical lowland river with a slow and calm flow. It has a convoluted channel, forms arms, a lot of rifts, islands, straits and shallows in not regulated places. The water level in the river increased, the

Table 4. Consolidated results of the evaluation of the main meteorological elements and indicators of the effective temperature in the city of Kaniv and its surroundings

months	air temperature, °C	relative humidity, %	effective temperature, °C	wind speed, m/s	cloudiness, points	thermal sensation and thermal loading	climate comfort for recreational needs
I	-5.5	82	-4.384	3.3	7.3	Very cool / discomfort / moderate, possible hypothermia	• subcomfortable winter (SC)
II	-4.3	81	-3.213	3.5	7.4	Very cool / moderate, possible hypothermia	• subcomfortable summer: cool (SS c) hot (SS h)
III	0.8	79	1.573	3.4	6.8	Moderately cool / discomfort	• comfortable (C)
IV	8.6	71	8.762	3.4	6.5	Cool / discomfort / discomfort	• uncomfortable (U)
V	15.1	66	14.406	2.9	5.5	Moderately warm / comfort	SC (winter recreation)
VI	18.2	70	17.216	2.6	5.5	Moderately warm / comfort	C (summer recreation)
VII	19.5	72	18.436	2.5	5.2	Warm / comfortable	SS c (summer recreation)
VIII	18.6	71	17.602	2.4	4.7	Moderately warm / comfort	C (summer recreation)
IX	13.9	74	13.494	2.6	5.1	Moderately warm / comfort	SS c (summer recreation)
X	8.0	78	8.176	2.9	6.0	Cool / discomfort / discomfort	U (summer recreation)
XI	2.2	84	2.699	3.4	7.9	Moderately cool / discomfort	
XII	-1.9	84	-1.138	3.4	8.1	Very cool / moderate, possible hypothermia	SC (winter recreation)

flow slowed down and the water exchange processes drastically changed after regulation through the construction of reservoirs.

The width of the Dnipro stream pool increased, the arms of the old meandering channel filled with water, forming the so-called Kryvi Ozera. The Dnipro in its middle course flows between the Dnipro Highland and the Dnipro Lowland, which determines the expressive asymmetrical features of the river valley within the city. The right bank of the Dnipro is steep, high, the left is low and gently sloping. A narrow flat right-bank lowland extends in places between the right bank and the water surface of the Dnipro. The left bank is lower, formed of sandy sediments and extends to the east in wide terraces. Within the city, the Dnipro valley is wide and reaches 15–18 km, and the channel width is up to 1500 m with a depth of 3–7 m, the speed of the current is 0.4–1.2 m/s. The middle part of the Dnipro basin is located in the forest zone of excessive and

sufficient moisture. The Dnipro River is fed by rain, snow and underground springs (Hil'chevs'kij, 2014, Greben', 2014., Vyshnevs'kyj, 2000).

A well-defined spring flood, a low summer runoff (with periodic rain floods), regular autumn floods and a winter runoff determine the water regime of the Dnipro. Freezing begins in December (freezing \approx 23.12) and lasts until March - April (opening of the river \approx 22.03). The freeze-up of the reservoirs is formed and disappears later than on non-regulated sections of the channel. Freezing-over begins in December (freezing \approx 23.12) and continues until March - April (opening \approx 22.03).

The water regime of the river has changed significantly after the construction of the Kaniv and Kremenchug reservoirs. The reservoirs equalise the water level in the Dnipro and the ice cover is thinner below the dams (Hil'chevs'kij, 2014, Greben', 2014, Vyshnevs'kyj, 2000).

The construction of reservoirs disrupted the ecological balance and radically changed the conditions of water exchange. Water exchange has slowed by 14-30 times compared with natural conditions. The construction of both reservoirs significantly affected the ecology of the Dnipro and coastal lands, including the growth conditions of aquatic and coastal vegetation of the Dnipro and its floodplain.

A number of species did not withstand the new living conditions, while others, on the contrary, are developing better, as a result of which the species composition of plants before and after construction and flooding has changed in all parts of the Dnipro. In the Dnipro and its reservoirs from 65 to 72 species of higher aquatic plants (macrophytes) were found. Among them, plants immersed in water (hydrophytes) of about 33 species and plants with floating leaves (hydatophytes) of about 19 species predominate. Among the plants adapted to the conditions of growth in the shoreline strips (air-water conditions) are about 20 species (Koreljakova, 1977).

In recent years, there is an intensive overgrowth of the shoreline areas of Kaniv beaches and an active bloom of blue-green water plants occurs here. A number of environmental problems such as climate change, reducing the period with temperatures below zero degrees and reducing the period of freezing of the reservoir, reducing fish population of the Dnipro, and the increase in pollution with phosphates and nitrates due to intensive chemicalization of agricultural production, affect the recreation and tourism in the city.

However, the level of pollution of hydrological objects of the city does not exceed the allowable values. Carrying out cleaning measures and technical cutting, etc. solves problems of overgrowing by shrubs of the beaches.

The city of Kaniv with its surroundings due to the presence and harmony of climatic and hydrological conditions is quite promising for organizing medical and recreational, beach recreation and water tourism of various types: rest, recreational aerotherapeutic, hydrotherapeutic, beach-swimming recreational activities and organization of chain institutions of the resort and medical direction.

Technological assessment of the suitability of a water object for recreational activities, in particular, bathing and beach recreation, includes the analysis and evaluation of the following indicators and parameters (see Table 5) of the water object and adjacent areas (the area from Dnipro Heroes Street along T. Shevchenko Street to Tarasova Gora).

The nature of the relief and sediments, vegetation also determines the significant favourability of a number of technological parameters for assessing the hydrological object for beach and bathing recreation (Kulinich, 2016, Danil'chuk, 2003, Alejnikova, 2003, Bovsunovskaja, 2003, Golubnichaja, 2003). Apart from the said parameters of the water object which are used for swimming and beach recreation, technological assessment also applies to the suitability of the water area for active types of tourism and recreation: boating, catamaraning, canoeing, kayaking, yachting and using other watercraft.

Technological indicators (width, length, depth of water area, current, direction and speed of wind, number of days with calm, etc.) of the Dnipro river in the area of the city satisfy the conditions for the implementation and organization of such types of recreational activities (Kulinich, 2016). Table 6 summarizes the technological parameters of the Dnipro River within the city (area from the Dnipro Heroes Street along T. Shevchenko Street to Tarasova Gora).

The natural recreational conditions of the territories is formed by biotic resources because vegetation cover directly affects the flow of climate processes, the formation of landscape diversity, hydrological processes and others. In relation to other recreational resources, natural resources create highly attractive conditions in any territories. Biotic resources, combining all the diversity of wildlife, have medicinal properties, scientific and cognitive, biomedical and aesthetic value and are involved in the processes of human recovery and rest (Fomenko, 2007., Tsarik, 2001, Chernjuk, 2001). The available biotic resources are favourable for treatment and rehabilitation, as well as satisfaction of the spiritual needs of humans and the organization of separate types of tourism (for example, hunting tours, tourist fishing, etc.)

Forests of recreational value and greenery of the city represent the biotic recreational resources of Kaniv and lands of the Kanivsky Nature Reserve and fauna of hunting and fish farms too. Wildlife resources are favourable for the rehabilitation, treatment and prevention of human diseases and technologically necessary to meet the recreational needs and the organization of certain types of tourism (hunting tours, fishing tours, scientific tours). The attraction of wildlife resources for recreational activities varies in its manifestations and nature: picking mushrooms and berries, fishing, walking and health paths, excursions and scientific tours, phytotherapeutic treatment and rehabilitation, landscape routes and excursions, visiting

Table 5. The evaluation criteria and the degree of suitability of the Dnipro River within the city of Kaniv for recreational activities during the warm period (Kulinich, 2016)

evaluation criterion	criterion value	degree of recreational favourability
shore	dry, with steep slopes requires simple structures for descent to the water	relatively favourable
water approaches	open	favourable
beach	sandy	favourable
the extension of the shallow, m	10-50	favourable
bottom	sandy	favourable
number of days with water +19-24 ° C	>70	favourable
current flow, m / s	0,3-1	relatively favourable
maximum depth, m	>1,8	favourable
degree of overgrowing,%	<5	favourable
water turbidity	slightly cloudy	relatively favourable

places of unique species, birdwatching and nature photography, etc.

Forest and urban greenery (roadside zones, parks, squares, and areas near houses and gardens) represents recreational plantings of Kaniv and its near surroundings.

The right bank of the city and its suburbs covered by recovered broadleaf forests with hornbeam, European oak, European ash, wych elm, small-leaved lime, field maple, Norway maple, Tatar maple, black locust, white poplar, quaking aspen, *Populus pyramidalis*, silver birch, European spindle, regent spindle *Euonymus verrucosus*, etc. The ornament of forest lands is the open areas of steppe meadows. The steppe meadows are a characteristic part of the upland plakor part of Kaniv dislocations. Xerophytes, psammophytes, a wide variety of grasses (fescue, windgrass, orchard grass, bushgrass, Junegrass, immortelle, hare's foot clove, *Potentilla argentea*, strawberry, *Euphorbia cyparissias*, oregano, yarrow, etc.) represents meadow steppe flora, which contain a large proportion of rare species and valuable medicinal plants. In

recent years, processes of secondary succession have taken place within the open spaces of the mountainous part. This has been accompanied by the spread of shrubby and tree species such as Scots pine, wild pear, blackthorn, hawthorn, oleaster and dog-rose. The shoreline water protection zone of the Dnipro River is planted with white acacia, weeping willow and white willow. On the left bank of the city and its vicinity grow pine and mixed coniferous forest of pine-forest terrace of the Dnipro River, which have the greatest recreational value. Common pine with an addition of European oak, rowan, white acacia, blackberry, red elderberry, etc. form the terrace's forests. Meadow plant groups are represented on the floodplain terrace of the Dnipro River. Such floristic diversity affects the physiognomic, colouristic aspects of landscapes, enhances the landscape and aesthetics of the territory, increasing the attractiveness of landscapes of the city and its surroundings.

Microclimatic features (temperature, moisture and radiation balance), ionization and phytocide effect of the air explains the recreational influence and

Table 6. Criteria for technological assessment and the level of suitability of the Dnipro River in the city of Kaniv for recreational activities during the warm period (Kulinich, 2016)

recreational activity	water area, hectare	length of water object, m	width of water area, m	depth of water object, m	recreational level of availability
canoeing, kayaking and rowing boats	>10	>2200	>90	>3	high
motor boat rides	>50	2000-15000	>200	>3	high
sailing	>100	>2500	500-2000	>2	high

value of the forest vegetation. The recreational attractiveness of the forest plantations is enhanced by the variety in species and age composition of the plant species, that is, the frequency of changes in landscape pictures and their aesthetics. In terms of phytoncide effect and air ionization, the most valuable trees for recreation and health improvement in the city and its surroundings are pine, pine-oak, hornbeam and oak-hornbeam forest plantations. Introduction of European ash, small-leaved lime, white poplar and *Populus pyramidalis* only increase the health value of the forests that cover the mountainous areas and territories adjacent to the Kaniv city (Gensiruk, 1987, Nizhnik, 1987, Voznjak, 1987, Fomenko, 2007).

Animal species characteristic of the forest-steppe natural zone are also components of the faunal recreational resources of the city and its environs. The number and recovery of wild animal species justifies the maintenance of the conservation status of the territories and the activities of the scientific department of the Kanivsky Nature Reserve and specialized farms. The following species of wild animals inhabit the territory of the Kaniv Nature Reserve (the forest lands of which fall within the administrative boundaries of the city): red deer, roe deer, wild boar, hare, red squirrel, stoat, marten, weasel, beaver, otter, white-tailed eagle, woodpeckers, the grey heron, great white egret, cormorants, ducks and other mammals and birds, reptiles and amphibians. There is very diverse world of insects, among which the most famous are the stag beetle, rhinoceros beetle, peacock butterfly and others. In the Dnipro River, there are almost 70 species of fish, in the area of the Kaniv city up to 40. The most common is carp. Due to the increases of pollution of the Dnipro River the quality of the environs is worsening and fish resources of the Dnipro are declining. The number of European chub, asp, and tench have decreased. Lake species, such as bream (about 40% of the total catch), pike, sabrefish, zander, catfish, carp, perch, grass carp and bighead carp take their place. Also in the Dnieper, there are two types of crayfish: long-toed and thick-toed (Degodjuk E., 2006, Degodjuk S., 2006).

There is a special place for objects and territories among natural recreational resources of the nature reserve fund, which include the Kaniv Nature Reserve, and lands of water protection and soil-protective significance. Nature protected areas play an important recreational role. They perform a popularization and educational function and play an important role in the development of organized tourism and scientific and educational excursions.

The concentration of cultural heritage sites (in

addition to the natural resources) confers a high degree of recreational and tourist attractiveness upon the city and surrounding areas.

Thus, among the archaeological monuments there are places of temporary settlements of semi-nomadic tribes on the Knyaga Mountain, places of settlements of agricultural tribes of the Middle Dnieper culture on Moskovka Mountain and at the foot of the Big and Small Horodyshe within the Kaniv Nature Reserve (Liubitseva, 2017, Romanchuk, 2017, Kochetkova, 2017, Vynnychenko, 2017, Mykhailenko, 2017). The settlements of the Zarubinetska culture have been excavated and explored on the territory of modern Kaniv (Moskovka and Pilipenkova Mountains). Nearly twenty settlements of the VII-IX centuries have been found near the town of Kaniv, nine of which are in the territory of the city and the Kaniv Nature Reserve (Bondar, 1959). The settlements are located on the slopes of the right bank of the Dnipro, sometimes at the mouths of small rivers or ravines. Within the city, there are settlements between the Seltso area and Moskovka Mountain, in the Izkovshina ravine, on the Iskova (Lysaya) mountain, on the Sorokopudova, Pilipenkova, Tarasova (Chernecha) mountains. There are four such settlements within the Kanivsky Nature Reserve: at the foot of the Big and Small Scythian Horodyshe and Maryina Mountain. One of the spiritual centers of Ukraine is located in the Kaniv city, the National Shevchenko Reserve, where in May 1861, the outstanding Ukrainian master and poet Taras Shevchenko was buried in May 1861 on Chernecha Mountain.

Among the architectural and historical monuments of the city, it is worth mentioning the sites from the Cossack era, the Second World War and relating to individual historical and cultural figures and personalities.

The main architectural attraction of Kaniv is the Uspenskyj (the first name of St. George) Cathedral. Prince Vsevolod built the cathedral during the time of the Kievan Rus in 1144. The Uspenskyj Cathedral of Kaniv is one of the few monuments of the Old Russian architectural school that have survived to this day along with the Church of St. Cyril in Kiev, the Transfiguration Monastery, Borisoglibsky and Uspenskyj Cathedrals, Ilyinsky, and Pyatnitsky Churches in Chernihiv. The facades and portals of the temple were decorated with frescoes. In 1587 Hetman, Ivan Pidkova, was buried here. Destroyed by the Turks in the XVII century, the temple was restored in 1805 with changes in architectural forms in the style of classicism and the practical loss of all wall paintings. During the restoration in the period of the late 1960s frescoes—old Ukrainian elements of

painting, were discovered. In 1993 all, the restoration work was completed and the cathedral was transferred to the UOC religious community of the city.

The House of the Basilian School (a two-storied house of the former Basilian school founded by the Uniates in 1781 and financed by the then owner of the city – Count S. Ponyatovsky) is another architectural monument of Kaniv. Now it is the Museum of National Decorative Art. In the center of the city, several more buildings of the XIX century are preserved.

The memorial complex, located on the Dniprova (Zamkova) Hill in the Park of Slava, in memory of those killed in the battles for their homeland, is dedicated to the Soviet soldiers who were killed during the Second World War, were born in the city or died for it in the fight against the German occupation forces. The Monument to the Heroes of the Armoured Train # 56, which is a full-size armoured train, was installed at the entrance to Kaniv in 1980 on the 35th anniversary of the Victory. It has been part of the exhibition of the Museum of Military Equipment in the Open Air since 2012. An armoured boat is installed on the Dnieper embankment – Monument to the Sailors of the Dnieper Military Flotilla. Built on Kyivska Street in the south-western outskirts of the city, a monument perpetuates the memory of 1250 residents of Kaniv (Sorokopud, 2012) shot by the German military in 1943 in Berestovetsky Ravine. Near the Museum of National Decorative Art is a bust of Oleg Koshevyy, who headed the youth underground in the Donbas during the Second World War and before that had lived for a while in Kaniv (the house where he lived is preserved). There is a grave monument of the Soviet writer Arkady Gaidar, who, being a correspondent on the front line, was killed near the village Liplava in 1941. In the center of the city there are monuments to Kaniv's soldiers who died in the Afghan War and to the victims of the Chernobyl accident (Bondar, 1959)

Near the Monastyrk tract is a monument to three Cossack hetmans whose life and activities were closely intertwined with the lands of Kanivshchina: Ivan Pidkova, Samiylo Kyshka and Yacob Shah. A monument to St. Macarius, the venerable martyr, Archimandrite of the Uspenskyj Cathedral, who was tortured and executed in 1678 during the attack of Turkish troops on Kaniv, is erected at the Uspenskyj Cathedral. The relics of the canonized saint are now preserved in the Volodymyr Cathedral of Kyiv (Fialko, 2003). There is a tomb monument to the Russian actor Olexander Lensky who died in 1908 and was buried in the village Selyshe on the Trakhtemiriv peninsula. However, when the grave was threatened by the rise in the level of the waters of the Dnipro River

in 1955, it was transferred to Kaniv. The monument to Vyacheslav Chornovil in Kanev was the first installed to him in the country. New commemorative signs mark the events of recent years. In early 2015 a memorial sign was opened in honor to the Heroes of the Heavenly Hundred. In the center of the city, near the chapel, a memorial sign “To the Defenders of Ukraine” was installed, dedicated to the memory of soldiers fighting in eastern Ukraine against foreign aggression at the end of 2015.

The names of prominent figures of the Ukrainian nation are associated with Kanev - M. Bilyashivsky, V. Vynnychenko, M. Maksymovych, T. Shevchenko, M. Gogol, M. Vovchok, N. Leskova, A. Malyshko, V. Sosyura, P. Tychyna and others. M.F. Bilyashivsky is rightfully considered the founder of the Kanivskyj Nature Reserve.

The combination of material and physical objects, whose activities are aimed at meeting the needs of tourists, represents Kaniv's socio-economic resources and tourist infrastructure. An integral part of tourist services is accommodation facilities, which have a direct impact on the formation of the tourist potential of the city. The total number of rooms, their condition and capacity affects the flow of tourism and prospects for the development of tourism on the local level. There are six accommodation establishments in Kaniv: the Knyazha Gora Hotel, Karat Hotel and Tourist Complex, the Hotel Complex Zamok Roda, the Old Kaniv Hotel, house-hotel of individual type and hostel in the Kanivskyj Nature Reserve. The total number of rooms is 59 (Liubitseva, 2017, Romanchuk, 2017, Kochetkova, 2017, Vynnychenko, 2017, Mykhailenko, 2017), the cost of accommodation starts from 200 UAH per day. These accommodation facilities are able to satisfy the needs of various categories of tourists – from unpretentious to demanding in the level of comfort. The location of the accommodation has a good geographical position relative to the city center, as well as transport stops.

There are 32 restaurants with 1391 places in Kaniv. They are located in the center or along the main streets of the city: O. Koshevogo, T. Shevchenka and Heroes of Heavenly Hundred. In the last two years, some establishments have closed for short periods in summer for technical reasons. All establishments are focused mainly on Ukrainian and European cuisines, less often - Asian (Biznes-kataloh pidprijemstv Ukrainy, 2017).

For leisure activities, tourists are offered entertainment facilities, which are located in the city center and along the Dnipro. The activists of the project “VeloKaniv”, staff of the museum institutions

of Kaniv region developed five cycling and several walking routes. Thanks to the first Contest of the Public Budget projects held in 2016, several tourist facilities were reconstructed and created in the city: a series of murals in the central part of the city, a square near the Magnit plant and steps to a historical and cultural monument, the Korolev Well, were created. Information and direction signs were set up on the T. Shevchenko Street (Liubitseva, 2017, Romanchuk, 2017, Kochetkova, 2017, Vynnychenko, 2017, Mykhailenko, 2017).

One of the forms of leisure and cultural enrichment is visiting museums. In the city there are several museums: Taras Shevchenko Museum, Kaniv Historical Museum, Museum of National Decorative Art, Kaniv Museum of Nature, Museum of Literary Kaniv Region and Club-Museum of War Veterans. An international film festival has been held in August since 2016 in the local House of Culture. It is planned to complete the construction of another House of Culture with 700 places under the direction of the Shevchenko Cultural Center. The date of commissioning is unknown. There is rental of bicycles and electric cars for children on the embankment of the Dnipro River.

One of the important components of the tourist infrastructure is transport. There are five bus and taxi routes in the city. Highways of regional and local significance pass through the Kaniv area. The requirements for intercity traffic are satisfied by the bus station “Avto-Rika”, which is equipped by necessary services for inter-city transportation of passengers. There are three main directions: Kyiv, Cherkasy and suburban. One route goes to Dnipro city. Buses depart at intervals of from 5 to 50 minutes. (Biznes-kataloh pidpnyemstv Ukrainy, 2017). Roads in the city center are not always safe and well maintained: some pedestrian zones and clear roads signs for drivers are absent, so there is a possibility of traffic accidents. Today there is no railway connection to the city following the explosion of the railway bridge in 1943. The nearest railway station is in Myronivka city. One of the priorities in the development of transport infrastructure is river transport, which can serve both domestic and foreign guests. The presence of the Dnipro River, the third in length and basin area in Europe, determines the modern development of the industry not only in freight traffic, but also in tourist traffic. The river transport industry of the city is represented by enterprises and infrastructure: “Auto-Rikar” Subsidiary and “Tarasova Gora” pier (Biznes-kataloh pidpnyemstv Ukrainy, 2017). By the mid 1990s the Dnieper was cruised as regular intercity

transport by the motor rocket ships “Polissya”, “Rocket” and “Meteor” from Kiev to Kaniv. Cruise routes of international importance passed through Kaniv. Only in 2016 after a long break, was the Kiev-Kaniv passenger voyage relaunched. It became an excursion route, which includes travel in both directions, visits to museums, the Tarasov Mountain and excursion services.

Conclusions. After analyzing and determining the level of favourability of the recreational resources of the city and its surroundings for the organization and implementation different recreational activities, we can make the following conclusions. According to the high degree of favourability of separate groups of recreational resources, the Kaniv city can specialize in the following types of recreational activities:

- Organization of therapeutic-wellness recreation, namely, climatotherapy (helio-, aero-, hydrotherapy), landscape therapy (viewing of the landscapes, walks by observation routes, audio and phytotherapy)

- Wellness and sports health recreation, namely beach- swimming recreation, healthpath walking and hiking, bicycle recreation and tourism, water recreation and tourism (by rowing, sailing, pedal boats, water skiing, hydro cycles, etc.), hiking and so on;

- Cognitive recreation and tourism, namely cultural, event, scientific tourism, excursions of natural, historical and cultural direction, hunting and fishing tourism, and so on;

- Eco-tourism, namely visiting the formations of geotourism objects network, birdwatching, botanical tours and nature photography. Development and implementation of excursions by routes to the “Trakhtemyriv” historical and cultural reserve, scientific and educational excursions by the ecotrail and an eco-route within the Kanivsky Nature Reserve, the regional landscape park “Trakhtemyriv”, etc.;

- Business (congress) tourism using the socio-economic infrastructure resources in addition to natural, historical and cultural resources. Formation of services package and services for holding congresses, conferences, symposia, forums, festivals, etc.

However, the availability and condition of the Kaniv’s socio-economic infrastructure and its environs indicates an insufficiently high level of security and comfort for the development of recreation and tourism in the city. Therefore, despite the significant potential for therapeutic recreation, the city is not provided with resort health and treatment facilities, as well as recreation centers, and insignificant mass recreation facilities are accessible both to the city’s population and to external tourists. The organization

and development of the resort business in the city requires large investments and reanimation measures. The arrangement for recreational activities of the shore zones and the banks of the reservoir also requires significant funding and redesign according to the current requirements of environmental legislation, territorial planning of the city, and so on. Parks or squares and other green areas of the city also have an aesthetic function and affect the overall perception of the city and, therefore, require additional equipment and care. However, the economic and humanistic effect of the introduction of this type of activity in the region is justified by the resource potential, the possibilities of both the environment and the interest of the population.

The transport and information infrastructure of the city and its surrounding areas also requires objective investments in growth and development. Due to the insufficient development of the city's road transport and information infrastructure, most of the monuments and tourist sites remain poorly integrated into the tourist routes.

Recently, the city has seen an increase in the development of accommodation facilities, catering and cultural leisure activities. There is a general trend towards arranging territories and hospitality facilities using authentic elements (local cuisine, stylized interiors, using unique elements in architecture and decoration, design, etc.), which increases the attractiveness of the city for tourists. In recent years, the city has seen a general trend towards the development of various types of congress (business) tourism (holding conferences, seminars, congresses, creative competitions, etc.), event tourism (holding festivals, exhibitions, fairs, etc.).

The recreational potential of the territory of the city of Kaniv and its environs is significant and can be easily transformed into an economically promising and high-quality consumer product. The result of a balanced use of natural and cultural heritage and available socio-economic resources would be an increase in economic indicators (such as employment, business activity, growth of financial indicators of business activity), improvement of demographic indicators (for example, decrease in labour migration), increased human development and quality of life for residents.

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