GEOGRAPHICAL SCIENCES

TERRITORIAL DIFFERENTIATION OF TOURIST-RECREATIONAL POTENTIAL OF THE ALMATY REGION

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ABSTRACT

The article proposes a method for constructing an integrated assessment of tourist and recreational potential based on cartographic material using the method of constructing a grid model of a territory for converting cartographic information into a quantitative and multidimensional model of an objective function. To simplify the calculations, the initial parameters from the legends to maps are generalized. Weight capacities on generalized parameters are determined on the basis of the closure of the system, taking into account the rating of various types of tourism. The results confirmed the far from the maximum value of the complex tourist and recreational potential almost the entire territory of Almaty region and its elevated values for the Almaty city and its environs.

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Introduction. The first section of the Concept of development of the tourism industry of the Republic of Kazakhstan until 2023, approved on June 30, 2017, notes that the tourism industry is one of the largest and dynamically developing industries in the world. According to the World Tourism Organization (UNWTO), in 2014 tourism accounted for 9% of world GDP (taking into account direct and indirect effects), 6% of world exports of goods and services. About 100.9 million people are employed in this field, herewith every 11 work position created in the world in the field of tourism. Tourism, influencing such related industries as telecommunications and transport, construction, trade, agriculture and others, contributes to the socio-economic development of the regions.

The Almaty region has a serious potential for the development of all-season domestic and inbound tourism. This is a great territory of contrasts, where practically close to large megalopolises and cities there are large spaces of untouched nature civilization. Of the recalls of foreign tourists visiting the Almaty region, this is one of the few corners of the earth, where dawn can be met in the steppe, noon in the forest, sunset - on a mountain pass. The neighborhoods of Almaty have a very diverse tourist and recreational resource. The uniqueness of the region is due to the fact that here you can fully develop almost all types of tourism. For example, ecological tourism, balneological, cultural, historical, sports and extremal, adventure, family tourism. Currently, Almaty region has 1519 historical and cultural monuments, of which 262 are architectural monuments, 1,250 are archaeological, 7 are natural, 9 are republican and 1 is of world importance. In addition to the presence of unique natural landscapes, archaeological and architectural monuments, the region is part of the Great Silk Road, which, undoubtedly, can very seriously influence on increase the level of interest of foreign tourists to this region. Currently, the Republic of Kazakhstan is participating in a very important and strategic project - the construction of a transport corridor Western

Europe - Western China. About 301 km of the Western Europe - Western China transport corridor will run across the territory of the Almaty region. It is safe to say that this project will provide a real opportunity for the development of auto-caravan tourism in the region [7].

The tourist potential of the Almaty region is presented annually at Kazakhstan's international tourism events: the KITF fair in Almaty, the Astana Leisure exhibition in Astana (now Nur-Sultan), and the regional tourism exhibitions in Oskemen, Shymkent, Aktobe. National natural parks "Charyn", "Altyn Emel", "Ile-Alatau", "Dzungar Alatau", "Kolsai Lakes", rest house "Maralsay", historical-cultural and nature reserve-museum "Tamgaly", Reserve-museum "Issyk" and other subjects of tourist activity. During the exhibition Astana Leisure-2015 was organized a competition on the knowledge of tourist attractions in Almaty region.

On the territory of the region there are 5 state national natural parks: "Ile-Alatau", "Altyn Emel", "Charyn", "Kolsai Kolderi", "Zhongar Alatau"; 2 natural reserves: Almaty and Alakol; 3 state nature monuments of republican significance: "Ashen Grove" in the SNNP "Charyn", "The Singing Dune" in the SNNP "Altyn Emel", "Chinturgen Spruce Trees" in the "Ile-Alatau" SNNP.

Tourist resources of specially protected natural areas are the basis for the development of ecological tourism in the region, including travel to places with relatively untouched nature in order to get an idea of the natural, cultural and ethnographic features of the area.

On their territory there are more than 40 objects of ecological tourism, 57 tourist routes and ecological routes have been developed.

In the national parks contain some of its most appealing attractions for tourists: the Sharyn river canyon and relict ash grove, Kolsai lakes and lake Kaindy, the Singing dune and Besshatyr necropolis, the Big Almaty lake and the Ile Alatau gorge is hotspots and most visited places in almost all tourist routes.

Today, tour operators offer more than 100 tourist routes, as they say, for every taste – hiking, horse riding, car. As well as environmental, cognitive, ethnographic, wellness, intourhunting and others.

So, for example, in the Talgar region, tour operators offer an equestrian and educational ecological route "To the mountain lakes of Tien Shan": Almaty – Zhalanash - Karabulak - l. Kaindy - r. Chilik - upper river Talgy - r. Kurmet - Kolsay Pass - Lake Kolsai-2 - Lake Kolsai-1 - Zhalanash - Almaty. Or car ornithological tour, which is laid as follows: Almaty - Bakanas - Sorbulak - Almaty - Bakanas - Karaoi - Delta r. Ile - Bakanas - GNPP "Altyn Emel" - Zharkent - relic Ashen Grove - Charyn Canyon - Zhalanash - Karkara - Zhalauly - Almaty - Tamgaly - Sorbulak - Almaty.

Very useful and interesting information about tourist firms and the services they provide can be found on the website "Information Resource Center for Eco-Tourism". The work notes the prospects of the city of Almaty and the Almaty agglomeration from the point of view of tourist and recreational development. The author substantiates this prospect by a number of factors that caused the reason that more than 20% of all tourist and recreational resources of Kazakhstan are concentrated in the territory of Almaty region:

- favorable natural and climatic conditions;
- richness and diversity of flora and fauna;
- a significant number of monuments of historical and cultural heritage;
- regional financial centre of Central Asia;
- the presence of historical and cultural monuments of Almaty, currently numbering 179 monuments of history and culture, including 30 monuments of national importance: 99 - history and architecture, 52 - monumental art, 28 - archeology;
- the presence of 37 museums, 13 theaters, 17 cinemas, 21 concert organizations, etc.

Nevertheless, the Concept notes that Kazakhstan, having a rich tourist and recreational potential, is characterized by an insufficient level of tourism development. Its share in GDP (only accommodation and food services are counted) is about 0.9%. In 2015, the volume of income from tourism activities amounted to 236.4 billion tenge, which is almost 2 times more than in 2010 (126.5 billion tenge). The number of employees in the industry amounted to 103.6 thousand people. Taxes and other obligatory payments from tourist activities to the budget of the Republic amounted to 11.0 billion tenge in 2015.

The disadvantages of tourism development in Kazakhstan, first of all, are the prices for accommodation, which in places with a high level of hotel services is much higher than in similar hotels in the leading tourist destinations of the world. The average cost of a standard room in a 5* hotel in Astana and Almaty is approximately 20% higher than the average cost of a standard room in the leading European cities and tourist destinations in the world. Prices for services in other places of accommodation – boarding houses, tourist bases, shelters, campsites, hostels for visitors and others are approximately 25-30% lower. Inflated prices are associated with a lack of competitive environment and strong dependence on business travelers. We

offer tourism services, including hotels, are provided with limited services and are lightly regulated. It should be noted that the high price of accommodation and air tickets significantly increase the cost of the tour to Kazakhstan and, accordingly, reduce its competitiveness in the price on the international market.

As a result, it is concluded that the potential of Kazakhstan's tourism is not fully realized, since the development of the tourism industry depends on the creation of a modern competitive tourist complex, including natural and climatic conditions, tourist attractions, the necessary infrastructure to meet the needs of Kazakhstan and foreign citizens in tourist services.

The literature constantly points to the complexity of determining the complex tourist and recreational potential due to the ambiguity of the choice of significant parameters for evaluation and the small development of approaches to the development of models for its justification. Assessment of tourist and recreational potential (TRP) of the territory is an important basis for optimization and rationalization of spatial and economic organization of territorial tourist and recreational systems, determining the value of individual resources and their combinations, identifying territorial differences in the availability of resources, determining ways of rational use of resources and balanced development of the territory. However, despite the forty-year history of the development of this scientific direction in domestic science, the application of the evaluation approach is constrained by the poor elaboration of many of its theoretical and methodological problems (Locusts MA, 2011).

As the main problems of assessing the tourist and recreational potential of the territory in the work of Mosko T. V. (2014), the development and application of evaluation scales of criteria indicators, which are usually built using expert methods or on the basis of empirical data using mathematical and statistical procedures, are noted. And since the impact of estimates is unequal, the need to use mathematical procedures is again emphasized, and there are no specific proposals for these methods: "the solution requires further development of this area of research.

The purpose of this article is to create a complex tourist and recreational potential and its differentiation on the territory of Almaty region to demonstrate the level of tourism development.

Material and methods. The source material of the study are two maps with legends for them from the second volume of the National Atlas of the Republic of Kazakhstan [4]. This is a map of scale 1: 7500000 and a tourist map of Almaty region of scale 1: 2500000. The transformation of cartographic information into quantitative was carried out by the method of constructing a grid model of the territory of the Almaty region. This technique is described in detail in the monograph [5]. The main requirement of using the grid model, the template of which was built on a scale of 1: 2500000, is to bring all the maps used to the same scale, therefore, to build a grid model of the Tourism map, it was converted to a single scale and part of this map was cut out within the Almaty region. Information on tourism on these maps is represented by icons (point information in the terminology of quantitative information theory).

Figure 1 shows a tourist map of Almaty region combined with a grid model as an example.

Fig. 1. Grid model of the territory of Almaty region [4].

In the legends for these maps, the number of icons used by us of different types of tourist and recreational direction was 20. To facilitate the work, they were generalized into three integrated parameters:

- cognitive or cultural-historical (further referred to as the symbol C) - burial grounds (burial mounds), petroglyphs, Buddhist images, settlements, ancient settlements, a Buddhist temple, mazars, museums;
- sports tourism (further referred to as symbol S): camp sites and alpine camps, guest hunting houses, sports complexes, ski resorts, horse and bicycle tourism, river rafting, beach holidays;
- medical-wellness (further referred to as the symbol W): sanatoriums and rest homes, mineral springs and water sources, health camps.

To obtain quantitative information, the total amount of each type of badge for each type of tourism in each block of the grid model was determined, which were then combined according to the types of tourism (C, S and W). The source data matrix is a scan of an area object in a row of columns, where the first column is the block designations in the order of rows, and the remaining columns are the parameter values by blocks. The grid model consists of 175 blocks, which means that the full matrix of input data will be describe from 175 lines and 4 columns. Three of them are the values of generalized variables (2, 3, and 4), and the first one contains the alphanumeric designation of the grid model blocks.

Below is a sample of the full matrix of initial data (Table 1).

Table 1. Sampling from the matrix of initial data by generalized parameters.

	C	S	W
3-J	1	0	0
4-P	2	1	0
11-N	2	0	0
12-J	1	3	0
12-K	1	0	1
13-F	1	4	0
13-G	2	4	0
13-H	2	1	3
13-J	0	3	0
13-K	0	3	4
13-L	0	2	2
13-M	0	6	0
13-O	2	0	0
14-E	1	0	0
14-H	1	0	1
14-O	0	0	2

Now let's focus on the calculation model of the complex tourist and recreational potential. The method of the objective function is used for its construction. The substance of the method is stated in the mentioned monograph and briefly reduces to the following. In accordance with the recommendations of R. Pentl [6], we take the multiple linear regression equation as a type of objective function (OF), which determines the value of the complex tourist and recreational potential (CTRP).

$$IOF(CTRP) = a_1 f_1 + a_2 f_2 + \dots + a_n f_n, \quad (1)$$

This note is valid both for the calculation of private objective functions $POF(TRPi)$, and for the integral (or complex, total – different terms are used). $POF(TRP)$ – determination of the values of tourist and recreational potential realized by each of the generalized groups by types of tourism, mapped by individual icons. The semantic content of these icons is described in the legends to the maps of tourism throughout the republic and Almaty region (C, S, W). $IOF(CTRP)$ is an integral objective function composed of privates and taking into account their significance.

In the first case, f_i is represent a private objective function for each of the generalized parameters for tourism groups – C, S and W. These private objective functions are based on the amount of the number of icons in each block in accordance with the list of initial types of tourism included in the generalized parameter. The estimated scale for conversion to points is selected according to the value of the maximum of all 175 blocks of occurrence of the generalized parameter for the scale one to ten.

In the second case, the evaluation scale is just calculated from the equation for the integral objective function when the values of the private objective functions are substituted for the values of the boundaries between the classes. For five classes, the boundaries will be 2, 4, 6, and 8 points.

The significance of the $POF(TRP_W)$, $POF(TRP_C)$ and $POF(TRP_S)$ was determined by their review of literature on the number of tourists served for each type of tourism included in the group of C, S and W, as well as by the rating of routes from advertising descriptions of recreation. As a result of the review with the use of the closure sum of loads on 1, the following values of significance were obtained: on $POF(TRP_W) - a_W = 0,4$; on $POF(TRP_C) - a_C = 0,3$ and on $POF(TRP_S) - a_S = 0,3$.

Research results. The first result is the values of the private objective functions of the $POF(TRP_i)$ - a sample of the full matrix of results for 175 blocks for CCP (TRPO), CCP (TRPP) and CCP (TRPS) is given in Table 2. The second result is the values of the integral objective function. They also constitute a matrix of results (fourth column of results)

The boundaries of the development classes of the complex tourist and recreational potential are IOF values (CTRP) equal to 2, 4, 6 and 8, therefore its values in the range of 0 - 2 belong to the class of the practically undeveloped CTRP (5 class); in the range of 2-4 - underdeveloped CTRP (4 class); in the range of 4 - 6 - the average level of development of CTRP (3 class); 6 - 8 - degree of development CTRP average (2 class); 8 - 10 high level of development of CTRP (1 class). For the convenience of visual perception, color designations of each class are introduced:

Color legend classes by level of development CTRP

	5 class		4 class		3 class		2 class		1 class

Table 2. Sampling from the matrix of the results of calculations of private and integral objective functions of the tourist and recreational potential.

Blocks	$POF(TRP_W)$	$POF(TRP_C)$	$POF(TRP_S)$	$IOF(CTRP)$
3-J	0	0	0	0
4-P	10	1,6667	0	4,5
11-N	10	0	0	4
12-J	5	5	0	3,5
12-K	5	0	2,5	2,75
13-F	5	6,6667	0	4
13-G	10	6,6667	0	6
13-H	10	1,6667	7,5	6,75
13-J	0	5	0	1,5
13-K	0	5	10	4,5
13-L	0	3,3333	5	2,5
13-M	5	0	0	2
13-O	5	0	2,5	2,75
14-E	0	0	5	1,5
14-H	0	0	0	0
14-O	10	1,6667	0	4,5

As can be seen from the color gamma of the fourth column of table 2, even in the region considered the most favorable for the development of tourism there is not a single unit with a high level of development of the CTRP. This conclusion is confirmed by the fact that the sample contains mainly blocks with the presence of various types of tourism. Blocks marked in yellow are tied to Almaty city and its environs.

Thus, the color gamma of the results of the development of CTRP indicates the need to find reserves for its increase. As such a reserve may be recently opened a new field of geothermal waters Zharkunak, the temperature of the water is marked in different well bores from 95 to 103°C.

Almaty region has great potential for the development of balneological tourism. The region is the most perspective for mineral waters, identified 34 occurrences of mineral waters of different chemical composition and temperature. There are 2 sources of thermal waters, two artesian basins: Almaty and Zharkent, which are formed by a thick layer of Mesozoic sediments with aquifer complexes of thermal waters (Neogene, Cretaceous, Jurassic and Triassic).

On the basis of the Aksai occurrence of nitrogen thermal mineral water, a unique Almaty city multi-profile hospital was built, 16 sanatorium-dispensaries are functioning. Since 1970, mineral water Kuram occurrence used for table spill. Thermomineral water of Alma-Arasan occurrence is used for treatment of various diseases [3].

The results of geological exploration in 2008 for thermal waters was the opening of the East Ili (Zharkent) artesian basin in Panfilov and Uygur regions. In the area of Panfilov within the Zharkent depression is located Ili intermountain depression, where exploratory well bores were opened thermal water with a water temperature of 900 degrees Celsius. Uighur district (Chunja 300 km from Almaty) is famous for its mineral waters. There are up to 140 sources of different composition.

One of the most important geological discoveries of recent years, it has become a new occurrence of geothermal waters Zharkunak in Almaty region. From a depth of occurrence 2800 meters for the first time obtained high-temperature water temperature above 100 degrees Celsius with high performance well bores - self-discharge of 4.5 thousand cubic meters per day. For approval, the reserves in the amount of 13 thousand cubic meters are presented.

Conclusions. Used in the model of the objective function and the construction of the grid model of the territory make it easy to obtain not only averaged for the region, but also differentiated values of the KTP on the basis of cartographic material.

The results showed a low level of development of CTP in most of the Almaty region. Even in Almaty and its surroundings (2 blocks out of 175) the level of development was slightly above average.

This conclusion is confirmed by the analysis of the current situation of development of tourist and recreational activities in the Republic of Kazakhstan, given in section 1 of the Concept of development of the tourism industry of the Republic of Kazakhstan until 2023 (approved by the government of Kazakhstan dated June 30, 2017 № 406). It is based on independent indicators of economic efficiency of tourist companies.

As one of the ways to increase the level of CTRP, it is proposed to expand the balneological direction by the use of geothermal waters, the use of which ensures the parallel development of energy and hothouse facilities.

REFERENCES

1. Концепция развития туристской отрасли Республики Казахстан до 2023 года (утв. пост. Правит. РК от 30 июня 2017 г. № 406)
2. Электронный ресурс: «Информационный ресурсный центр экотуризма». <http://visitkazakhstan.kz/ru/guide/tours/2/0/?filter%5btype%5d=0>
3. Электронный ресурс: http://kazregion.kz/2010/03/about_region/
4. Национальный Атлас Республики Казахстан. Т.2
5. Павличенко Л.М. Методы объективизации принципа «загрязнитель платит» на примере оценки роли нефтегазодобывающего комплекса в формировании экологического состояния Мангистауской области: монография / Л.М. Павличенко, А.Р. Есполаева, А.С. Ақтымбаева. – Алматы: Қазақ университеті, 2017. – 246 с.
6. Пэнгл Р. Методы системного анализа окружающей среды. – М.: Мир, 1979. – 215 с.
7. Сайт Союз журналистов Северо-Казахстанской области <http://namig.kz/news/almatinskaya-oblast-obladaet-ser-ezным-potencialom-dlya-razvitiya-turizma>