

# Formulation of a basic tourist and recreational framework of the Tyumen region

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**Abstract.** The article presents the results of research on the principles, factors and conditions for building a basic tourist and recreational framework and its purpose in the system of rational nature management and socio-economic development of the region. The purpose of the study is to frame the sustainable development of the territory of municipal districts, ensuring the maximum possible preservation of the state of the natural and territorial complex in the formation of a territorial model of the tourist and recreational framework. The Tyumen Region has been accepted as an object of research and approbation.

## 1 Introduction

In the context of the integrated sustainable development of the territories of the regions, the formation of a supporting tourist and recreational framework makes a significant contribution, on the one hand, to socio-economic development, and on the other hand, to territorial ecological balance in compliance with the principles of rational nature management [1]. At the same time, it should be noted that this type of framework is closely correlated with other supporting frameworks of the region: the settlement framework, road transport, resource-economic and natural-ecological [2, 3]. All frameworks, without exception, perform a certain function in the overall complex socio-ecological and economic development of the region, like any system, they are combined by direct and inverse connections, forming a unity of the natural-territorial complex with spatial-territorial planning organization and economic activity [4]. We are talking about unity that ensures socio-ecological and economic harmonization aimed at the development of rational environmental management in accordance with the resource capabilities of the region and the laws of minimum and limited natural resources [3, 5, 6].

The purpose of the study is to develop a territorial model of the basic tourist and recreational framework of the Tyumen region, taking into account the maximum possible conservation of natural resource potential (the state of the natural and territorial complex of the region).

The Tyumen Region, which is one of the largest subjects of the Russian Federation located in Western Siberia, was chosen as the object of testing. The Tyumen Region (without autonomous districts) includes 5 urban districts, 21 districts and 293 rural

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settlements. The administrative and territorial structure of the Tyumen region is approved by the law of the Tyumen region [7].

Based on the purpose of the tourist and recreational framework, the authors highlighted the recreational significance of this framework in the environmental management system as a dominant, which determined the focus of this study, presented in the author's methodology:

1. Analysis of scientific concepts determining the purpose and functioning of the basic tourist and recreational framework [3].

2. Definition of the key provisions of environmental management as the basis for the integrated sustainable development of the Tyumen region in the formation of the tourist and recreational framework [3].

3. Study of the current state and use of recreational resources in the region: performing landscape analysis using Earth remote sensing materials; assessment of environmental and economic value; expert assessment of the sustainability of recreational ecosystems (establishing parameters of the sustainability of each recreational ecosystem to man-made impacts and determining their geochemical and biological stability); functional zoning of recreational areas and the establishment of land use regimes resources within each zone (subzone).

4. Analysis of the current system of supporting frameworks of the Tyumen region and determination of the degree of their unity in ensuring the harmonization of the development of the socio-ecological and economic subsystem of the studied territory.

5. Research of techniques and technologies for building a supporting tourist and recreational framework [3].

6. Development of methodology and technology for building a territorial model of the tourist and recreational framework of the Tyumen region in compliance with the principles of rational nature management.

7. Development of a regional development strategy [8].

The article considers in more detail the methodology and technologies for building a spatial-territorial model of the tourist and recreational framework of the Tyumen region, which is based on the principles of rational nature management.

## **2 Materials and methods**

In accordance with the adopted methodology, promising directions for the integrated development of the Tyumen region have been identified, which allow solving a number of its key problems in creating a developed tourism and recreation infrastructure.

Direction 1 (rural population): increase the flow of population to rural settlements, provide jobs and establish your own business; strengthen (develop) social infrastructure; link settlements in the transport logistics system of municipal districts and the region as a whole, expand the list of services in the field of tourism and recreation.

Direction 2 (natural resources: natural landscapes, environmental protection, historical, cultural and architectural monuments): respect for nature; formation and protection of natural landscapes, environmental protection, historical, cultural and architectural monuments, etc.

Direction 3 (engineering and transport infrastructure): construction and reconstruction of the road transport network [9].

In this study, complex, systemic, landscape-ecological and framework approaches are used, as tools for solving the tasks set, the following methods are presented: cartographic, modeling, statistical, graphical and abstract-logical, as well as the method of geoinformation analysis.

When constructing a territorial model of the tourist and recreational framework of the region, the authors considered the relationship between the population of municipal districts and the parameters of recreational territories, which determines the possibilities of long-term development of the tourism industry [10]. The following elements are considered in the structure of the tourist and recreational framework of the region:

1. The cores defining the "basis" of its entire infrastructure, providing a variety of recreation and tourism, including key elements: the main tourist facilities (hotel complexes, entertainment centers, museums, parks, attractions, sports facilities); infrastructure for outdoor activities (hiking trails, bike trails, walking paths, etc.).

2. Axes (transport and route corridors). This structural element is considered as the main directions of movement, which are the key connecting elements of various areas and cores within them into one territorial framework of recreational and tourist infrastructure. Depending on the considered hierarchical level of the tourist and recreational framework, several types of axes can be distinguished: transit, main regional axes (long-distance water, horseback, hiking routes, as well as multi-day automobile routes) and local axes [11].

The authors performed a geoinformation analysis, based on the results of which a supporting tourist and recreational framework of the Tyumen region was built. The framework construction technique includes four stages:

- Stage 1. Collection of data on population density in municipal areas, on the availability and location of tourist and recreational facilities, such as hydrography, specially protected natural areas, natural landscapes, railways, highways.

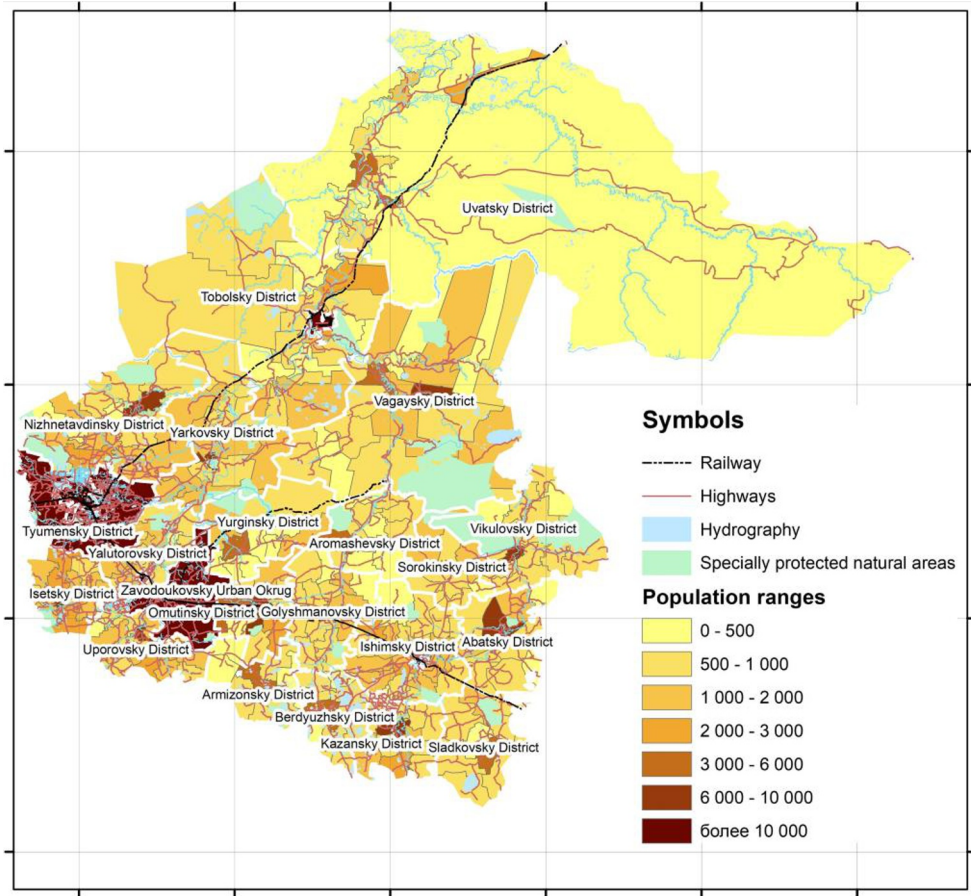
- Stage 2. Implementation of geoinformation analysis as a result, a digital map of the relationship between the number of inhabitants of rural settlements and the location of recreational and tourist facilities is created (Figure 2).

- Stage 3. Building a supporting tourist and recreational framework. When analyzing data on population density and developed tourist infrastructure, areas with high population density and a large number of tourism facilities are identified, which ultimately form the basis of a basic tourist and recreational framework. At the same time, territories with a low population are taken into account, subject to the presence of well-developed tourist facilities, based on the fact that these areas (areas) may have significant potential for the long-term development of tourism and be of interest for further research and planning of its development.

- Stage 4. Development of a strategy for the development of the tourist and recreational cluster of the Tyumen region and municipal districts.

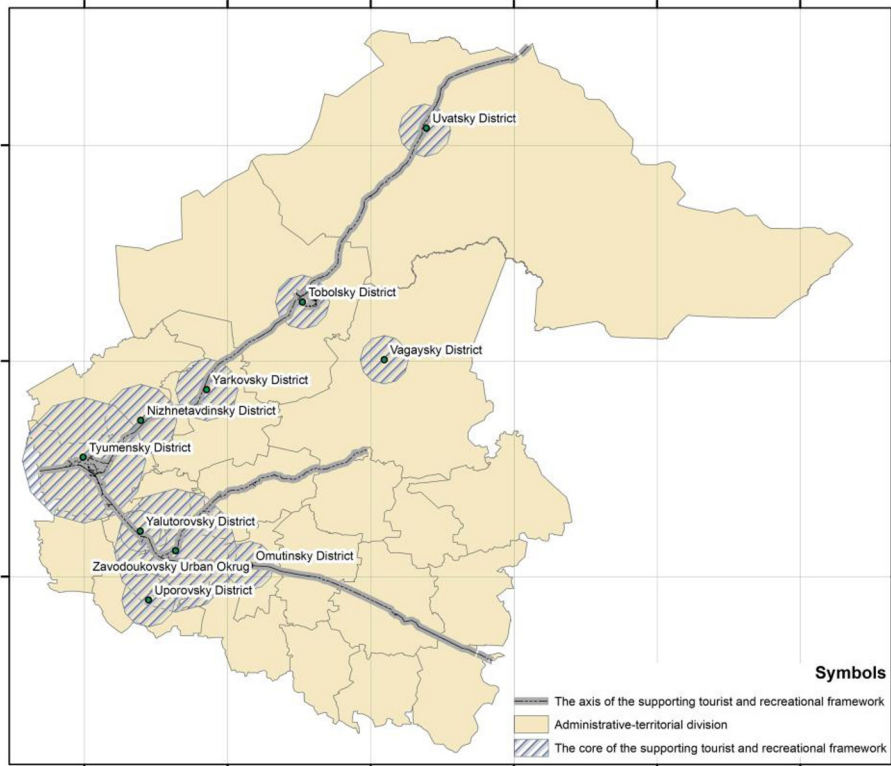
### **3 Research results**

The results of the use of geoinformation analysis in the construction of a tourist and recreational framework are presented on a digital map reflecting the relationship between the number of residents of municipal districts and the location of recreational and tourist facilities in the Tyumen region (Figure 1). The number of inhabitants is reflected for each rural settlement in the Tyumen region. Using the methods of geoinformation analysis, the areas and density of inhabitants were determined.



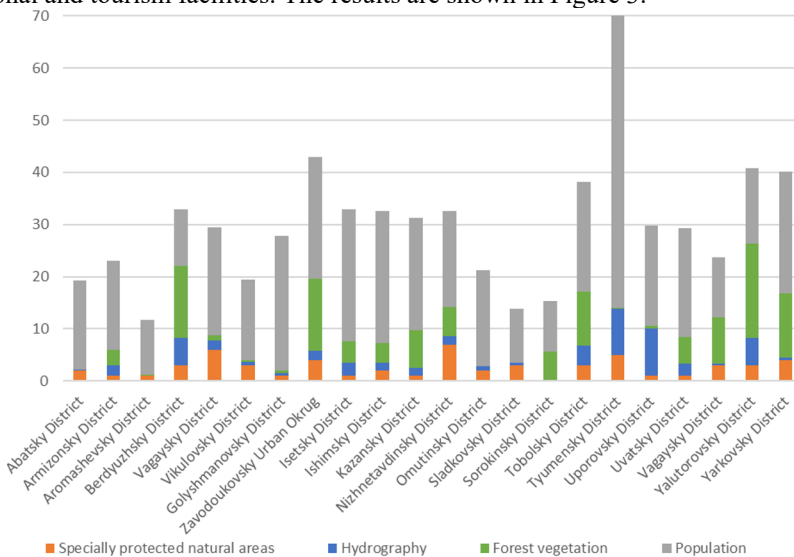
**Fig. 1:** Digital map of the relationship between the number of inhabitants of rural settlements and the location of recreational and tourist facilities in the Tyumen region

When developing key provisions regarding the construction of this type of framework, a graph was created showing population density, a normative indicator of recreational load per person, the number of recreational facilities (hydrography, specially protected natural areas, etc.) in municipal districts of the Tyumen region, which is an important tool for visualization, assessment of the environmental and economic value of recreational ecosystems, and also, an expert assessment of their stability (Figure 2).



**Fig. 2:** The supporting tourist and recreational framework of the Tyumen region

The graph presented in the article made it possible to evaluate the ranking of municipal districts of the Tyumen region by population density and the planned volume of the main recreational and tourism facilities. The results are shown in Figure 3.



**Fig. 3:** Graph of the relationship between the number of inhabitants of rural settlements and the planned volume of recreational and tourist facilities in the Tyumen region

The obtained results of the relationship between the number of inhabitants of rural settlements and the planned volume of recreational and tourist facilities in the Tyumen region allow us to conclude that the highest level of provision of municipal areas with recreational facilities is observed in Tyumen, Tobolsk, Yalutorovsky and Yarkovsky, within the boundaries of which there are more than 500 hydrographic objects; the area of forests occupies more than 700 hectares; There is a wide list of specially protected natural areas with significant potential for the long-term development of tourist and recreational activities.

## 4 Conclusions

The study takes into account that the basic tourist and recreational framework is a hierarchical structure of the spatial organization of the territory. The authors consider the tourist and recreational framework as a complex of interconnected facilities, infrastructure and services designed for the organization of recreation, tourism, and cognitive activity [3].

All this suggests that the interaction between the level of tourist and recreational development and the population in municipal areas can lead to a synergistic effect that contributes to the development of the economy, and, as a result, improve the quality (comfort) of life [11].

Thus, the combination of the development of the tourism industry and the growth of the number of inhabitants in rural settlements can contribute to the creation of its own sustainable economic model for the region, attracting both tourists and new residents, which ultimately will contribute to the formation and strengthening of the socio-cultural environment.

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