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## Ecotourism as a Tool for Sustainable Development

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**Abstract:**

*Modern pace of urbanization and globalization has a stable tendency to consolidate cities. Millionaires absorb suburbs, forming agglomerations. The development of territories in such conditions requires a change in a number of landscapes, town-planning, social and cultural systems.*

*The European part of Russia differs from the rest of the country by a dense location of cities forming powerful agglomerations. 9 of the 15 of them created in the country are located on this territory, the largest of them being Moscow and St. Petersburg.*

*Voronezh city agglomeration is the second largest after Moscow in the central part of European Russia. It has historical, cultural and unique natural features. Over the past 5-10 years ecological tourism has become a promising direction of development due to the region's development trends.*

*Recreational and tourist potential of the regions of the central part of European Russia and its cultural heritage are able to a great degree to predetermine the strategy for their development. Evaluation of these components and the development of a concept based on interdisciplinary analysis resulted in evaluating the prospects of such territories and outlining the pathways of anagenesis.*

*Based on the triplex (landscape-ecological, biogeographical and town-planning) interdisciplinary approach, the concept of the ecological framework for the development of agglomerations is substantiated as the basis for environmental management for the sustainable development of the region. Its implementation will allow preserving the biological and landscape diversity of the territory, improving the ecological situation, developing socio-infrastructure facilities, making ecological tourism a profitable source of income for the regional budget.*

**Keywords:** *Ecological framework, tourism, regional sustainable development, biodiversity, agglomeration.*

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## **1. Introduction**

Sustainable regional development is one of the main tasks of modern Russia. How to make large geographical areas stable and self-sufficient? How can culture, mentality, and identity be preserved at the current pace of globalization? How to invest financial and labor capital while expanding cities and not "losing" suburbs? Solving such complex and acute tasks it is important to understand the integrity of the territory, which requires a compromise between the observance of human rights and high economic indicators.

Russia is a multinational country with a rich cultural and natural heritage. This is a mosaic of regional landscape-environmental and social conditions, and an individual approach is required for the development of each individual unit. Analysis of the specific features of modern development of many countries proves the thesis by M. Soga and some others that the guarantee of sustainable development is the territorial unity and its regional characteristics concerned. In this case, the natural environment becomes not the antagonist of modern society, but its leading component and the basis for building a comfortable urban environment (Soga, 2015). At the same time, it is necessary to solve the world set tasks in the field of sustainable development of countries and their regions (Pickett, 2001). One of the ways to achieve this goal is the development of ecosystem services - these are the conditions and processes through which natural ecosystems contribute to the maintenance of human life activity (Daily, 1997; Kovalenko *et al.*, 2016; Faizova *et al.*, 2015).

Recreational areas that fit into the system of natural and anthropogenically transformed territories, forming landscape-ecological frameworks are highly valued in urbanized regions (Turner, 2005; Lisova, 2012; Mihno, 2014). They contribute not only to the maintaining and development of biodiversity (Sukopp, 1983), but also to the development of tourism and infrastructure environment (Borlakova, 2011; Ulyanchenko, 2015).

The ecological framework is a way of managing the nature use, ensuring long-lasting and inexhaustible coexistence of a man and the natural resources used (Ponomarev, 2012). The main elements of the system are "cores" (large green massifs, specially protected natural areas, green common areas, etc.), "green corridors" (river valleys, coastal zones of reservoirs, ponds, lakes, alleys, boulevards, etc.), "buffer zones" (natural and artificial forest plantations, steppe and meadow plots, etc.). Regional frameworks require complex landscape-ecological, infrastructural, communication, urban planning, social analysis of the territory taking into account its specific features and development needs. In such cases, recreational and tourist facilities are of great importance as promising ecological social and infrastructure links of the territory.

Ideas for the development of ecological frameworks as the ways to ensure

sustainable regional development have emerged in Russia in the past 10-15 years (Ponamarev, 2012; Grigorievskaya, 2013; Mikhno, 2014) and are of current importance for all large agglomerations. For the team of authors the development of a triplex method of territory analysis for the unification of the process of preservation and development of Russian regions and the construction of systems of ecological frameworks of agglomerations became urgent. The basic model was the Voronezh city agglomeration as the second largest after Moscow in the central European Russia. Occupying favorable economic-geographical position, having transport routes, cultural traditions, landscape features, abundant biodiversity (central forest-steppe) it is a universal object for constructing the scheme of the ecological framework.

## **2. Methods**

To create the concept of the ecological framework, a set of methods and methodological approaches applied for similar studies in Russia, China, Sweden (Ponamarev, 2012; Mikhno, 2014; Soga, 2015; Cord, 2015; Tiwary, 2015) was used. The applied Interdisciplinary approach, based on the synthesis of biogeographical, landscape-ecological and town-planning principles for the analysis of urbanized territories is innovative for this project. The biogeographical approach of the analysis includes: field, descriptive, statistical research methods as well as the method of comparative analysis, synthesis and photography. It is also considered as a theoretical basis for studying biota of urbolandscapes, reflects the synthesis of the theoretical and methodical tools of sciences at the interface - physical geography, anthropogenic landscape studies, ecology, biocenology, geobotany, environmental management.

The landscape-ecological approach includes the methodological achievements and procedures of landscape planning and design, reflected in the "Guidance on landscape planning", (Guidance on landscape planning, 2000; 2001), works by Dyakonov and Doncheva, 2005; Dyakov, 2005; Mikhno, 2014; Kochurov, 2003). In the analysis great attention is paid to field observations, large-scale landscape mapping (including that with the help of modern geoinformation systems), to identifying the nature of natural and territorial complexes interaction, to studying the recreational and tourist potential of the region, to the analysis of literary and fund sources.

The town-planning approach is expressed in the "step-by-step increase of the components of the natural framework in all the transformed spaces proceeding from the renewal of the functions performed by them and the creation of a qualitatively new structure with the priorities of human existence" (Nefedov, 2012). The peculiarity of this approach is also the cluster ranking of the territory with the allocation of urbo-ecological formations. It was also used to identify transport links between settlements, natural sites and specially protected natural areas (PAs). Due to

such "arteries" (Grigorievskaya, 2013), the main interrelations of the natural-ecological framework of agglomerations and the city are formed.

### **3. Results**

Developed by a group of landscape scientists, ecologists, biogeographers, city planners and landscape architects, the ecological framework project of the Voronezh city agglomeration is a single geoecological system with a high degree of economic development, a developed communication network, population of over 1.3 million people, occupying 31.9% of the territory of Voronezh region, the center of which is the capital of the Central Black Earth region - the city district of the city of Voronezh. The area of the projected territory is 16.7 thousand km<sup>2</sup>. The base of the framework is represented by "cores" of different hierarchical levels, consisting mainly of forest tracts, protected areas and green public areas, as well as "green corridors" - forest belts, embankments, boulevards, avenues and "buffer zones" - water protection zones, sanitary protection zones, agricultural lands, recultivation zones.

The key objects of the recreational and tourist potential of agglomeration development are specially protected natural areas. They are represented by three categories: a nature monument - 61, a nature reserve - 4, a dendrological park 1. They are custodians of not only landscape and biological diversity, but historical and cultural heritage: Kostenki Chernyshova Mountain, etc. Their proximity to the city center, developed traffic flows, population growth, people's need for improving the quality of life and recreation make it necessary to create a recreational framework that will lead to the development and popularization of eco-tourism. Their area, together with the existing ones, will be up to 600 km<sup>2</sup>, or about 5% of the total agglomeration area. Inclusion of PAs in the recreation system will allow using them not only as reserves of natural heritage, as scientific stations or areas of biodiversity concentration, but also as tourist-attractive, economically and socially separate areas. The most attractive are multifold complex landscapes with an area of more than 5 hectares, having the possibility of creating a tourist infrastructure (food points, places for rest, places for personal hygiene, parking for cars or bicycles, etc.).

According to the results of the survey of the "cores" of the ecological framework in 2013-2015 some conclusions about their status and prospects of use for the tourist system of the region are drawn:

- 1) the established regime for environment management in the territories of 47% of natural monuments is not being met;
- 2) an additional survey is required to develop a network of green corridors that unites all objects taking into account the spatial, landscape and communication components;
- 3) the composition of the dendroflora is not diverse, the main tree species are: *Betula pendula* Roth, *Pinus sylvestris* L., *Acer tataricum* L., *A. Platanoides* L., *Populus*

pyramidalisRoz., *P. tremula* L., *Ulmuslaevis*Pall., *U. glabra*Huds, *U. pumila* L., *Quercusrobur* L. ..

- 4) many natural monuments are in a remote place, their borders are not marked;
- 5) there are no identification marks with information about the object;
- 6) there is no precise indication of the location of some objects;
- 7) 35 out of 59 objects completely and 5 partially can be used to create a recreational framework of agglomeration (Lisova, 2012).

The ecological framework of agglomeration is a part of the landscape and ecological framework of the region, where not only PAs but also other natural objects with the concentration of rare biota and the greatest landscape diversity, high landscape and ecological potential belong to the "core". They are able to influence positively the ecological situation of adjacent territories. They include the preserved valley-river landscapes, island forests of interfluves, zonal reference landscapes of placers and others (Mikhno, 2014).

Effective work of frameworks is not possible without the creation of a network of ecological "green" corridors that act as main roads for material and energy exchange and communication flows between the cores. Their role, both for the agglomeration and region frameworks is performed by valleys of rivers, beams, shelterbelts and other elements. The analysis of the green corridors made it possible to draw conclusions about the composition of the dendroflora of the "green" corridors of the ecological framework of Voronezh agglomeration, the functional state of these objects, and the prospects of their use (Grigorievskaya, 2013).

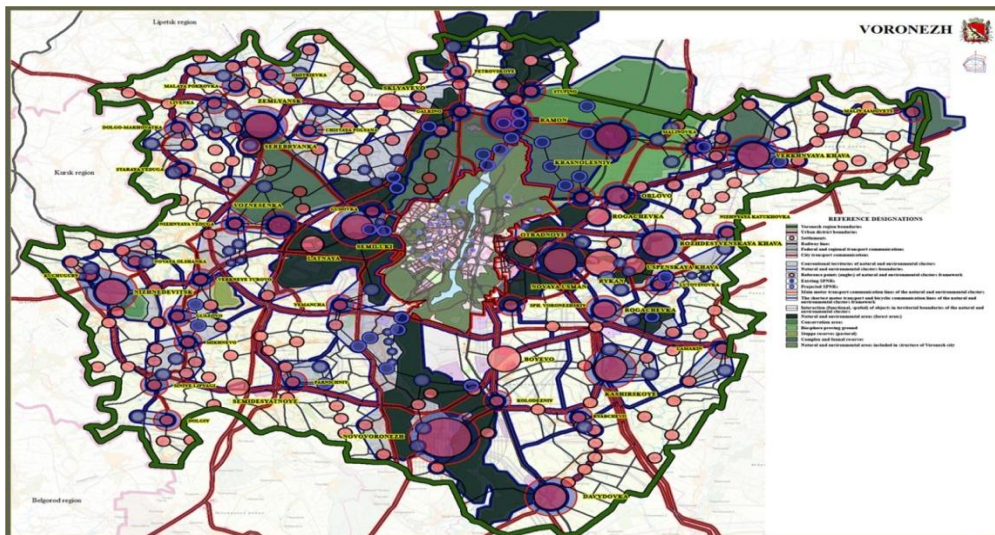
So in 57 "green" corridors under survey the main representatives of dendroflora (about 85%) are introduced trees species and shrubs: *Tilia cordata* Mill, *Acer negundo* L., *Fraxinusexcelsior* L., *Ulmusglabra*Huds, *U. pumila* L., *Caragana arborescens*Lam., *Cornus alba* L. , *Quercusrubra* L. There is a heavy biological contamination of these objects by invasive (weed) representatives of the flora: *Amorpha fruticosa* L., *Acer negundo* L., *Alnus incana* (L.) Moench and others. Functional condition of the corridors requires reconstruction: sanitary felling, renovation of plantations, creation of new tracts, erosion control measures, cleaning from household and construction debris and rags. To organize the recreational and landscape-ecological component of the environment effectively, it is the linear links that are of strategic importance.

Specifics of settlement, social, infrastructure and communication features of the development of the region also have significance for the development of tourism and the creation of an ecological framework model. Cartographic modeling with the help of geo-information technologies made it possible to create a landscape-ecological basis for the development of town-planning principles for the development of the territory. To do this, all the "cores" of the framework that were promising for recreational and tourist development were plotted on a map indicating their profile

and prospects for development. The most significant from the point of view of settlement and development potential were also noted. Priority was given to settlements in which territories (or within a radius of no more than 5 km) there were specially protected natural areas of landscape or biological profile. The marked objects were designated as centers of recreational units of the Voronezh city agglomeration.

The identification of the spatial and functional links of the ecological framework led to the allocation of clusters and units of lower rank - separately existing and promising for tourism PAs. In this case clusters are understood as territories, the main units of which are natural massifs, PAs and settlements, serving as the functional cores of clusters. In other words, each such cluster includes the natural-ecological and technogenic components. At the same time, the latter provide the first component with all the necessary infrastructure objects. This approach is aimed at identifying several major urban-ecological entities that are a part of the agglomeration structure for their further development. Technogenic and natural-ecological territories that are part of the agglomeration structure interact due to transport (motor and bicycle) "arteries". Among their total number the main recreational axes of the Voronezh agglomeration, as well as the shortest functional-spatial relationships of objects within the natural-ecological clusters (Figure 1) were revealed.

**Figure 1.** Town-planning structure of natural-ecological clusters of the Voronezh agglomeration based on the key objects of the ecological framework.



A comprehensive analysis of the territory of the Voronezh city agglomeration made it possible to illustrate the concept of its development of the ecological framework,

which will form the basis for the development of the tourist business of the region. From the point of view of tourism-recreational zoning, the agglomeration refers to the Voronezh Central Russian forest-steppe district, the Donskoy (especially promising) and the Vedugo-Rossoshansky (low-perspective) regions (Ecological-geographical atlas-book of the Voronezh Region, 2013). Usman-Novovoronezh, Severodonsk, Novovoronezh-Liskinsky subareas can especially underline in the first district. They possess the highest tourist development potential; they have the greatest infrastructural saturation, developed transport network and are represented by the largest number of existing and prospective PAs of landscape and biological profile. The largest number of architectural and archaeological monuments of nature is concentrated in them, including the world important State Archaeological Museum-Reserve "Kostenki". The Usman-Voronezh region is a tourist and recreational center of the whole agglomeration, including the city of Voronezh, the Voronezh State Biosphere Reserve, 4 nature reserves and 1 dendrological park. Of special significance for the development of this subarea is the development project of the "Great Voronezh Ecological Path", extended by the Government of the Voronezh Region. It is over 40 km in length and encompassing the Voronezh State Biosphere Reserve, natural monuments (including archaeological sites), manor house museums, and geological outcrops (Saniev, 2015).

## **Discussion**

Thus, from the point of view of recreational, tourist, landscape-ecological and town-planning analysis, the Voronezh city agglomeration has a reason to use its natural and resource potential for the development of tourism as a full-fledged economic branch that generates revenue for the budget. However, in 2014 the services sector regional budget revenue was only 2% of the total gross income, and less than 0.5% in the tourism sector. The reasons for the low use of natural, cultural and historical heritage as a resource for the economic and social development of the regions are largely related to the institutional deformities inherent in the Russian economy as a whole.

Among the main problems hampering the development of the tourism industry are:

- low level of improvement of cities and historical centers, lack of navigation and information services;
- in the sphere of public catering there is a discrepancy between the prices and the quality of the dishes and drinks offered; poorly represented local cuisine;
- poor condition of roads and roadside service (parking, toilets);
- poor development of water transport for delivery of tourists to destinations, as well as for excursions and walks;
- local souvenir products are not diverse and original;
- poor development of leisure and tourists entertainment sphere, especially in the evening and at night;
- lack of entertainments for children and tourist sites, focused on children / parents with children;

- poor promotion of regions and their tourism resources in Russia and abroad;
- the lack of a common concept and strategy for the development of the whole tourist business as an industrial complex.

Just as the most of the small and medium-sized cities in Russia, the city of Voronezh and its agglomeration are characterized by a number of problems related to cultural and educational tourism: the poor state of cultural heritage monuments, the monotony of excursion services (weak use of interactive forms and modern museum technologies), underdevelopment of event tourism, insufficient coordination of the state and commercial sectors of the sphere of cultural and educational tourism. The greatest task is to attract small businesses to the development of this branch of the economy.

The disunity of the activities of firms of different rank, lack of understanding of the common goal development does not provide an opportunity for the development of the potential direction for the region. The difference in ideological perception and tourism business development goals is seen in the relationship between state museums-reserves and tourist companies, as well as individual guides. Having the common object of economic activity and labor application of (cultural and historical monuments), these agents achieve different goals. As a rule, for state museums the main goal is to preserve the object of cultural and historical heritage. For a travel agency it is to deliver tourists to the site, show it and, if possible, provide additional services other than sightseeing services - theatrical performances, master classes, visiting souvenirs and folk art fairs, etc. Such a difference in purposes and ways of their achievement leads to serious contradictions between museums and commercial travel companies at the regional level that do not receive regulatory approval. Museums-reserves tend to monopolize their right to use the object of cultural heritage and prohibit excursions by outside guides on their territory.

A major problem for the Voronezh region (and Russia as a whole) is the coordination of the tourism services market participants activity, as for its successful development the market requires simultaneous and interrelated activities in various segments (excursions, food, transportation, souvenirs, leisure, improvement, information, etc.). If it does not happen, the so-called "market coordination failures" are observed, which can be overcome with the help of an external regulator. Most often such a regulator is the state, which uses various tools ("development institutions"): banks, funds, agencies that perform supporting functions of financial, organizational, coordinating nature (Solntsev, 2009).

At the same time, we should note the active development of the hotel business in Voronezh (of different classes and levels), holding of international festivals and exhibitions (the Platonov Festival, the International Landscape Exhibition-Fair "Voronezh-Garden City", etc.), restoration of estate-museums, renovation of city parks, implementing of large environmental projects (the Voronezh reservoir rehabilitation project, the Great Voronezh Ecological Path, the preparation of the



Eco-brand of the Voronezh Region). It is these events over the past 5-10 years that give reasons to hope for positive changes and use of the natural resource potential and cultural heritage as the basis for the development of the tourism industry in the region.

#### **4. Conclusions and recommendations**

The interdisciplinary analysis of the territory of the largest agglomeration of the Central Russia allowed creating its ecological framework with the allocation of recreational clusters as potential social and infrastructure development centers. Identification of the framework elements and standardization of its "cores" can create a hierarchical system of territory's tourist development depending on the category of the tourist object (SPA) and its remoteness from the settlement. The larger the settlement and the more attractive its development from the point of view of its different profiles cores fulfillment, the more promising the development of this settlement is. Tourist and recreational zoning with the allocation of areas and subareas also gives an idea of the priority and agglomeration development direction. Being the capital of the Central Black Earth region, the city of Voronezh attracts regional and international flows, and its advantageous geographic and communication location plays an important role in developing its potential.

This approach is applicable to all large agglomerations. The unique triplex approach ensures the comprehensive development of the territory with an emphasis on the recreational and tourism component, as one of the foundations of regional development. The universal model extends to the entire territory of the European part of Russia.

Despite the voiced problems of the tourism industry in Russia, the competent development of a strategy for the development of tourism and recreational potential based on the ecological framework will increase the regions services budget's profitability. The Voronezh region has a positive tendency to develop this sector of the economy, but administrative participation to ensure the participation of development and business remains an important task.

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