Evolution of Vladivostok’ Spatial Structure and Architectural Image

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Abstract. The modern stages of Far Eastern sea cities’ development are characterized by problems and contradictions, which are the result of insufficient consideration of their formation and development’ fundamental principles. These problems solution is to analyze their spatial structure and architectural image from the standpoint of the evolutionary approach. This approach allows us to reveal all the existing shortcomings and contradictions and to formulate the main directions, principles and means of the urban environment’s reconstruction in order to improve and humanize it. The article considers the development of the spatial structure and architectural image of the city of Vladivostok from the standpoint of the evolutionary approach and the methodology of complex analysis proposed by the authors.

1. Introduction

An analysis of Vladivostok’s architectural image current state involves the study of this issue in a wider context: as a study of the laws of the city spatial structure and architectural image formation and development from the perspective of an evolutionary approach. At first glance, such a study of the city has a purely historical and architectural significance. However, in reality, this approach is important from the point of view of modern theory and practice, since it is impossible to truly understand modern trends, and even more so to predict the prospects for the development of the city, outside the integral picture of the historical and architectural evolution of the urban organism [1-8].

It should be noted that the architectural and urban development of Vladivostok was considered in a number of works by A.I. Alekseev, V.V. Anikeev, E.A. Vasiliev, N.P. Kradin, V.M. Markov, N.P. Matveev, V.A. Obertas, V.I. Prelovsky, N.S. Ryabov, G.N. Smirnova et al. [9-16]. In most of these works the evolution of the spatial structure and architectural image of Vladivostok did not become the subject of a special and focused study. However, it is precisely such an evolutionary approach that is becoming especially relevant today, since it is necessary to understand at what stage in the development of the city and under what conditions the degradation of Vladivostok architectural image took place. This will help outline the basic principles, directions and means of improving its spatial structure and architectural image of Vladivostok.
2. Methods

The methodology is based on a system of formal and substantivite characteristics that together reveal the structural-morphological, architectural-compositional and artistic-figurative qualities of the urban environment. These characteristics arise as a result of the interaction of the coastal city’s environment main components: terrain, water area, architecture and ship and port facilities.

The complex of structural-morphological, compositional and artistic-figurative characteristics allows a comprehensive study of the spatial structure and architectural image of the city. Therefore, based on the above characteristics, a comprehensive spatial analysis of the urban environment can be implemented. The content and structure of a comprehensive analysis can be presented in the form of a special model. It reflects the main components of the urban environment (terrain, water area, architecture, ship and port facilities), as well as the main directions of complex analysis: structural-morphological, compositional, semantic [17-20].

The methodology of complex analysis assumes structural and morphological analysis as the first step. In the course of it, environmental characteristics such as geometric shape, length, layering, planarity, density, black-and-white and coloristic structures are revealed. Based on this analysis, a conclusion can be made about the structural and morphological characteristics of the urban environment. Next, a composite analysis of the environment is carried out according to such parameters as the rhythmic structure, accents and dominants, characteristic points and axes of perception, scale-proportional relationships, etc. As a result, the compositional-spatial structure of the urbanized landscape is determined. And, finally, in the course of semantic analysis (its components: associative-metaphorical series, key semantic signs, basic meanings and significance), the artistic-figurative and semantic content of environment is revealed.

Comparing the data of a complex analysis, we get an objective basis for a comprehensive and integrated study of the sea cities’ structure and image. This technique allows, firstly, to study, compare, identify the specifics of the architectural image of various cities. Secondly, on its basis, the shortcomings and contradictions of the spatial structure and architectural image of the existing urban environment can be revealed, as well as suggestions for its improvement can be formulated (this will be illustrated below by the example of Vladivostok city).

3. Results

In Vladivostok, the natural landscape situation covers a complex of relatively rare features and is so specific that it plays a key role in the spatial composition and image of the city’s shaping. The specifics of the natural and geographical conditions of Vladivostok laid the natural foundation for its architectural and artistic identity, including: the polycentric compositional structure of the urban landscape, the presence of a complex system of interacting axes, accents, dominants, landmarks; panoramic city environment, a plurality of angles and points of perception, the versatility of visual views; the dynamics of light-color states depending on seasonal, weather and temporary changes; qualitatively different methods of spatial organization depending on microclimatic characteristics. The main goal of this work is to consider the features of Vladivostok’s spatial structure and architectural image formation from the standpoint of the evolutionary approach.

First thing to do is to determine the periodization of the city spatial-temporal development stages. Properly defined, they allow giving a clear and continuous view of the city evolution (the gradual transition of one qualitative state to another). The analysis of the socio-historical development of the city is the basis for periodization. It clarifies the functional planning and spatial-morphological metamorphoses of the city during evolution. This, in turn, makes it possible to reason the change in the compositional structure of the city and its architectural and artistic image. Analyzing from this position the process of socio-historical development of Vladivostok, we can distinguish 7 main stages:

1) 1860-1880 - the foundation of Vladivostok as a military post until the official status of the city in 1880;

2) 1881-1905 - after obtaining the status of a city until the end of the Russo-Japanese War;
3) 1906-1922 - after the end of the Russo-Japanese War until the liberation of the Far East from the White Guards and interventionists;

4) 1923-1945 - after the establishment of Soviet power in the Far East until the end of World War II;

5) 1946-1956 - the post-war period before the adoption of the Decree on the Greater Vladivostok construction;

6) 1957 - the end of the 1980s. - from the start of construction of the Greater Vladivostok to changes in socio-economic conditions in the country and region;

7) the beginning of the 1990s to date - the modern period of the city development.

Each of these stages is characterized by its specific regularities of the formation and development of the city. At the same time, there is a certain general line of evolution, when any subsequent phase bears the imprint of the previous one. Without dwelling on the description of each of the above stages, we briefly characterize the general line of development and those changes - spatially-morphological, compositional, artistic-figurative and semantic, that accompanied it (Fig. 1).
1946-1956
- The development of the city is carried out in the zone of the lower and middle tiers of the landscape.
- The building is tiered in nature, more dense in the central part.
- Volumetric module and spatial module are comparable to terrain modules.
- The spatial composition of the city is quite expressive and harmoniously connected with the natural landscape.

1957-1990
- The development of the city is carried out in the zone of the lower, middle and partially upper tiers of the landscape.
- The building is compact, sometimes dense.
- Volumetric and spatial building modules exceed landscape modules.
- Compositional relationships are broken, disharmony of the building and the natural landscape in the mass building zone.

1991-2010e
- The development of the city is carried out in the zone of all tiers of the landscape.
- The building is compact, dense.
- Volumetric and spatial building modules significantly exceed landscape modules.
- The compositional unity of the urban environment is broken, the pronounced disharmony of the building and the natural landscape.

Figure 1. The process of socio-historical development of Vladivostok.

4. Discussion
The previous analysis of the main stages in the development of the spatial structure and architectural image of Vladivostok allows us to stay in more detail on the shortcomings and contradictions of the current state. This analysis is a necessary step in the development of scientific recommendations for improving the existing environment, since it determines the main directions and tasks of compositional reconstruction. The above analysis of Vladivostok revealed the following main disadvantages and contradictions of Vladivostok’s spatial structure and architectural image: the absence of a compositional relationship between the spatial-plastic structure of the landscape and buildings; inconsistency between the volumetric and spatial building modules with the corresponding landscape modules; architectural and artistic monotony of modern buildings; leveling and distortion of the artistic qualities of the natural landscape; semantic poverty of modern buildings; lack of compositional unity and style matching between the old and new buildings; aesthetically inexpressive solution to landscaping and land improvement; the inexpressiveness of the coloristic decision, the limited “palette” of the applied building and finishing materials.

The shortcomings and problems described above determine the main directions of design and research activities and architectural and urban planning practices for improving the architectural and artistic image of Vladivostok. Themain directions and principles for improving the structure and image of the coastal city should be formulated as an alternative to these shortcomings and contradictions, as well as specific techniques for the compositional reconstruction of the existing environment should be developed.

5. Conclusions
An analysis of Vladivostok spatial structure and architectural image evolution’s main stages reveals the following patterns of development: priority extension of territories with the most favorable
microclimatic and relief characteristics; sequential complication of the city’s spatial structure; a change in the nature of the relationship between the natural and architectural components of the urban landscape; the complexity of the compositional and spatial structure of the city, the partial degradation of the architectural image at the stage of mass industrial construction; enlargement of the volumetric and spatial module of the building and violation of its optimal relations with the corresponding module of the natural landscape; the transition from local, undeveloped architectural panoramas to wide, multi-tiered, circular, to a continuous "urban facade".

The elaboration of city’s architectural and urban development concept involves the study of the main stages in the formation of its spatial structure and architectural image. This allows us to formulate the main directions and principles of the city’s further improvement.

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