

GUIDELINE FOR DEVELOPMENT OF LANDSCAPE SPATIAL COMPOSITION OF THE RESIDENTIAL AREAS

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Abstract. The development of the multi-storey residential areas in the Baltic Sea region shows an inequality that changes the spatial environment of the territory. The major part of the city territory is occupied by the multi-storey residential area that reveals multiple problems of the spatial environment. Therefore, it is necessary to resolve these problems by building new more multi-functional zones in the multi-storey residential areas that would further ensure the sustainable development of the spatial environment. To find the relevant data and material, a scheme of questions for analysis was developed. The scheme reflects all the necessary aspects for the analysis of the landscape composition in multi-storey residential areas. The analysis from the theoretical aspect with the usage of empirical methods determined the current state of the multi-storey residential areas in the Baltic Sea region. The paper presents the study of historical development and the causes of changes, as well as the current state and potential future development of the landscape composition of the multi-storey residential areas. It also reflects the development framework of the landscape composition. The multi-storey residential area that carries a great load of the multi-functional areas, needs an improvement, a renovation and needs to be reconstructed and developed according to all the mentioned characteristics of the spatial environment.

Key words: multi-storey residential area, landscape spatial composition.

Introduction

One of the various city architectural elements is the multi-storey residential areas. These areas create a fixed and specific spatial environment. To determine the development framework of the multi-storey residential area, an analysis of the Baltic Sea region was carried out. In the particular region several important urban planning aspects and factors were investigated. The aim of this research was to explore the functional and structural basic principles of the multi-storey residential area, as well as to determine the framework of the landscape composition.

The landscape composition of the multi-storey residential area is not widely investigated, but, at the same time, is important for a perspective development of any self-government's urban planning infrastructure. The functionality, aesthetical harmony and organization of the multi-storey residential areas can be achieved with successful formation of the spatial composition. Researches determine the most important development features and the current state of the multi-storey residential areas in the Baltic Sea region. Several stages of development are studied and analyzed according to the four-stage base model. The four-stage base model includes the landscape heritage, modern analytical overview, both the positive and the negative tendencies, as well as the improvement level of the spatial development.

The situation in the Baltic Sea region is varied and alternating. A rational and functional development of the spatial environment in the multi-storey residential areas should be facilitated. All the analyzed aspects of the landscape that could provide a functional and organized spatial environment to its inhabitants in the particular multi-storey residential area should be observed. Every fixed factor and the element of landscape models a unitary functionally spatial composition of the multi-storey residential area. The more rational the spatial environment is planned and

modeled in the multi-storey residential area, the more sustainable and functionally available it will remain for the next generations.

Materials and Methods

To determine the framework of the development of spatial composition in multi-storey residential area, theoretical and empirical methods were applied. The spatial composition, as well as the urbanized structure of landscape of the selected multi-storey residential areas of the Baltic Sea region was analyzed from the theoretical point of view. For the practical research, to objectively determine the situation, information on several other European countries' experience in planning, sustaining and reconstructing the multi-storey residential areas was obtained and studied. Accordingly, the methodologies one embraces to comprehend the meanings, roles, and consequences of Baltic modernism need themselves to be interrogated (Mansbach, 2006).

The analysis of the spatial composition from the theoretical point of view

Residential areas comprise different types of residential buildings. They are chosen depending on the regional climate, the location and the size of the city, the potential of inhabitation, the demographic situation etc. For the construction of residential areas and building estates, usually different types of building are chosen, which satisfy the specific inhabitation needs of various demographic groups and provide satisfactory sanitary and hygiene living conditions. The construction of diverse residential buildings, alongside with other cultural buildings and edifices, allows modeling different spatial compositions in the residential areas (Briņķis and Buka, 2001). Thus, from the theoretical aspect, the analysis of the data and material was based on the study of territorial and architectural spatial development process of residential area complexes with the help of the four-

stage base model. The four-stage base model used for the theoretical analysis was obtained from the book by J. Briņķis and O. Buka 'Pilsētu un lauku apdzīvoto vietu kompleksu arhitektoniski telpiskā plānošana' (Complicated spatial architectural planning in city and rural populated places). The book precisely defines the necessary questions that are suitable for analytical structure and are adequate for optimal research of the multi-storey residential areas in the Baltic Sea region. The first stage deals with the historical overview - what was? The second stage deals with the modern analytical overview - the positive, negative and stagnating tendencies - what is? The third stage looks at the development tendencies. Finally, the fourth stage is the resulting phase that brings forward the suggestions on how to improve the architectonic spatial development. The unitary base model specifies the novelty of the research and analyses (Briņķis and Buka, 2006). From the historical aspect, the analyses were made on the 20th century's multiple constructions of multi-storey residential areas in Sweden, Finland, and Baltic States. The functional organization of the area and space that is directly linked with the artistic image of the building creates a foundation for any modern architectural particularity and originality (Zakamennijs et al., 1966). Accordingly, the development of architecture in the spatial organization and landscape composition of the courtyard. The modern analytical overview presents both the positive and the negative tendencies in the modern multi-storey residential areas. The state of the multi-storey residential territories built in the 20th and the 21st centuries was analyzed separately. The research reveals the current state of the courtyards in these territories. Based on the modern analytical overview the further development tendencies were determined for the multi-storey residential areas. The final and the most important stage of the four-stage base model is the resulting phase of the suggestions for the improvement of the architectonic spatial development. In this stage, all the material from the previous stages was collected and analyzed, and the relevant suggestions for the improvement of the landscape composition for the multi-storey residential areas were put forward. The final stage is still being updated and improved in order to include the correct and rational improvements for the landscape composition framework.

The application of empirical methods in analyzing the multi-storey residential areas of the Baltic Sea region

The empirical methods used comprise the evaluation of the current situation, observation, discussion, interviews, and the investigation of the research security. To perform a thorough analysis and to collect the most relevant information, a specific empirical method was applied in the photo-analysis process of the current state of the multi-storey residential area. For the evaluation of the spatial composition, the main scenery and landscape details, the functionality of the composition, the structure of the urban space, the exploitation possibilities for the inhabitants, the location of courtyards, as well as the duty and wear

of the area were observed. The photo-analysis of the current state of the multi-storey residential areas was performed in several cities of the Baltic States, for example, Siauliai, Riga, and Pärnu, and in Stockholm in Sweden. An interview was performed with two groups of respondents, and the investigation of the legal security where the initially gained results need to be supplemented and the research should be continued until the complete information is obtained. One group of respondents comprised 50 people - the inhabitants of multi-storey residential areas. This group of respondents provided a significant insight and their opinions regarding the existing state of multi-storey residential areas. An information obtained concerns the respondents' attitude and considerations toward the courtyards of the multi-storey residential areas, their typical features, functionality, and their current state. Another group of respondents comprised 10 experts. The experts were chosen according to the specifics of architecture, design, and landscape planning. The group of experts enlisted the major problems and inconsistencies, as well as they offered their opinion on the further development tendencies of the courtyards.

Results and Discussion

The results obtained from the four-stage base model present that the current state of the landscape composition in the multi-storey residential areas is diverse. The region contains both the multi-functionally constructed courtyards and the very low-quality multi-storey residential areas. The residential area occupies the main part of the city, and the buildings mainly located in there are residential buildings, administrative, municipal and other buildings, as well as parks, gardens, streets and squares. The residential area is the largest in its amplitude, and takes up 60–70% of the territory in the large cities, and up to 80% in the smaller cities (Briņķis and Buka, 2001).

The analysis of the historical overview shows that the analyzed Baltic Sea region territories have changed and developed over time. Urban planning in Sweden during the 1950s and 1960s was synonymous with land-use planning (Khakee and Stromberg, 1993). The multi-storey residential areas and their courtyards built in the second half of the 20th century were in good condition and satisfied the needs of the territory's inhabitants of that time. The interior of the residential complex was constructed in a natural manner with many green areas with numerous trees and plants (Zakamennijs et al., 1966). The material analyzed proves that there has been a division of functional areas, including several negative features that are also present and unsolved nowadays. There are also well-constructed playgrounds and sports fields for children of any age, resting places for adults, arbors, fountain pools, covered pavilions for drying clothes, and garbage can sheds. All the small landscape elements are handily placed between buildings and trees, except for the liquid fuel containers that are sunk in the ground near the steam shops, which doesn't complement

the interior composition of the square (Zakamennijs et al., 1966). The composition of the courtyards is constructed accordingly to the building plan of the multi-storey residential area. In the development of the 20th century city residential areas, several planning and building systems have occurred that are used in designing building estates. The specific systems are the perimetral structure, group building, row building, combined or miscellaneous building. The perimetral structure is marked by the layout of buildings along the streets of the building estate that enclose the territory. The group building system is marked by the layout of buildings along the perimeter of the territory, as well as it divides the inner space of the quarter into separate courtyards and gardens. In the row building system, the buildings are constructed in parallel rows, orientating the buildings parallelly the main roads and highways. The combined or miscellaneous building system is a compositional join of all the previous systems (Briņķis and Buka, 2001). Approximately 60% of Riga's housing stock has been built after the II World War, during the Soviet period. Most of these are precast panel apartment high-rises. There is more of this type of large, concrete panel housing in Riga than in the developed democratic countries, or even more than in the Eastern Block countries (e.g. Poland had only 35% of such housing stock in 1990; Czechoslovakia had 36%, East Germany - 20%) Increase the density of some residential districts by appropriate infill of various types of residential and service buildings, but preserving the particular character of those districts (Bertaud, 2002). One of the main examples in Latvia is the city Jelgava. After the ravaging war, Jelgava has been successfully rebuilt. The reconstructed city represents the variety of successful building and planning techniques and the high level of commodity and utilities. The spatial organization of the city is also achieved with the help of free planning principles. One of the best examples is the construction of the city's central square (Zakamennijs et al., 1966). Latvia and the capital Riga are undergoing unique and radical changes. These political and economic changes in the country have also influenced the population of Riga and the city structure (Asaris and Marana, 1996).

The next stage of the modern analytical overview revealed an evaluation of the current state of the multi-storey residential area in the Baltic Sea region. Nowadays analytic summary identifying most important positive and negative evolution aspects, transformations in these residential areas. The residential areas together with the building estates is the modern residential building form for organizing new residential territories and for reconstructing the existing building areas (Briņķis and Buka, 2001). At present, the most important task is to create a sustainable city. This task is complicated and difficult for Latvia when compared with other cities and countries that have been able to develop harmoniously without imposed interruption. Latvia is still feeling the negative consequences of the past 50 years of occupation, which were the cause of both environmental degradation and disharmonious

development of the city (Asaris and Marana, 1996). These multi-storey residential areas in the Baltic Sea region reflect the mutual inequality in the quality of the environment. Multiple negative features are present in the multi-storey residential areas, affecting the possibility to successfully and functionally organize the courtyard. There are certain problems in housing development in Europe that are related both to the ageing of the housing fund and the news social and economic conditions. Residential districts in Europe differ significantly bearing characteristic features of the era when they were built. There is also a large diversity of dwellings that accommodate the needs of different social classes. Yet the place and role of these diverse territories in the urban structure, their interrelation, adequacy of the dwellings to the requirements of their residents and to contemporary housing standards provoke a number of questions that are essential to the overall development of cities and to provision of quantitative and qualitative housing for the city dwellers (Treija, 2007). The same problem occurs in the courtyard interior planning in these residential areas. There are imperfections of functional zones and technical solution, overloading with parking places, contamination of spatial environment, depreciation of free recreational spaces. There are multi-storey residential areas constructed in the last several years that do not agree with the aesthetically and functionally effective and successful courtyard planning. The specialists have not thought enough about the accessibility of the environment and rational exploitation of the functional areas for people of all age categories inhabiting these residential areas. The residential funds are wearing off, and there is a disproportionate expansion of the residential areas. The residential areas should be located in the healthiest and in the most natural and the highest territories of the city. The great significance in the inhabitation process of these territories has the solar and wind regime. The full insolation and aeration of these territories have to be performed. Another great significance in inhabitation of such territories have the nearby located forests that beneficially affect the sanitary condition of the city and the organization of resting places for its inhabitants (Briņķis and Buka, 2001).

Development tendencies are very important factors in multi-storey residential areas. The processes of the last decades - the housing sector reform, social differentiation of the population, etc. - have resulted in serious changes in the situation and problems pertaining to the large-scale residential districts. New residential developments are in different stages of implementation within the territories of the existing districts and in the areas bordering on them. The new developments considerably change the existing structure of districts and create preconditions for spatial as well as social conflicts (Treija, 2008). In the Baltic Sea region, one can observe several stages of development tendencies. The courtyards of the multi-storey residential areas are well established, adapted to inhabitants' needs, but they are not in accordance

with the rest of the city's buildings, transport systems, and landscape. There is another opposite tendency where the main accent is put on the architecture of the new multi-storey residential area, but the ideas and solutions for the landscape composition of the courtyards are abandoned. Some of the positive examples of the significant development tendencies in multi-storey residential area are to be found in Tapiola in Finland, and in the new residential area Hammarby Sjostad in Stockholm in Sweden. Such areas can be created with the help of progressive functional, economic and aesthetic factors that deal with the questions concerning the quality of the living space and conditions in the broad urban planning aspect. The streets, roads and alleys of the residential area are to be planned as a unitary system, including all the building estates that shape a residential area. The density of the streets should be determined by organizing a comfortable transmigration of the inhabitants from their residential buildings to the city transport stations or stops (Briņķis and Buka, 2001). The spatial structure of large cities evolves very slowly and can evolve only in a few directions. On a large scale, it is never possible to bring back to nature the land that has been already developed. Planners should therefore have a good understanding of the potentials and liabilities inherent to the current spatial organization of the city in which they work (Bertaud, 2004).

The spatial environment of Riga is undergoing active development with its direct impact being exerted also on the large-scale residential districts - by quantity the most significant part of the living environment of Riga. Since about 60% of the city dwellers reside in large-scale residential districts, which constitute approximately 40% of the housing stock of Riga, the future prospective for these territories is an urgent topic in the context of the urban development in Riga. Altogether 13 large-scale residential districts were constructed in Riga over a period of about 35 years, starting from the mid 1950s. At that time large numbers of groups of this type of residential buildings were built in various parts of the city (Treija, 2008). The improvements of spatial development in the multi-storey residential areas are necessary not only in Latvia, but also in the whole Baltic Sea region. The spatial structure of a city is very complex. It is the physical outcome of the subtle interactions over centuries between land markets, and topography, infrastructure, regulations, and taxation. The complexity of urban spatial structures has often discouraged attempts to analyze them and *ad fortiori* to try to relate urban policy to city shape (Bertaud, 2002). In such residential areas the development in landscape composition is an important and significant aspect that would create better living conditions for the area's inhabitants. Some of the main frameworks in planning the multi-storey residential area are: the improvement of the functional areas, reaching aesthetically high criteria, the development of the engineer-technical solutions, the maintenance of the surrounding environment and its renovation in places

where it is needed. All aspects should be observed in maintaining the individualities of the natural landscape, determining successful functional and compositional solutions and plans in the spatial environment. Urban planners, however, should constantly monitor the impact that specific policies may have on city shape. They should be aware of the effect of the most common planning tools - land use regulations, infrastructure investments and taxation - on the spatial organization of a city. They should make sure that the urban shape resulting from their actions will be consistent with the objectives set by elected officials (Bertaud, 2004).

The unfavorable attitude of the inhabitants towards the living environment, dysfunctional spatial planning that causes irreversible negative consequences is only a small part of the bigger problems in the multi-storey residential areas. These methods were affirmed by the group of 50 respondents, who emphasized that the situation in the multi-storey residential areas will remain unchanged in the following five years, and that they would like to maintain or modernize the specific stylistics of the inner squares of each of the multi-storey residential areas in the Baltic Sea region. The inhabitants accentuate that the poorly constructed and low-functional planning of the area is not suitable for children playgrounds; there is a notable draught as well as a significant load of the population in the nearby multi-storey residential areas. The group of experts emphasizes that often in their professional work process they come across low-functional courtyards in the multi-storey residential areas. For further development they advise to replan, improve and aesthetically rework the unattractive, degraded multi-storey residential territories. They would prefer that each Baltic Sea region multi-storey residential area was maintained or modernized according to the specific stylistics of their quarter or community. A great problem is the affect of the numerous inhabitants of the nearby residential areas, which poses an inconvenience to the functionality of the courtyard. Currently, the quality of large-scale residential districts does not comply with the modern requirements and does not meet the social and recreational needs of inhabitants. While the quality of individual flats is gradually increasing, the public open space continues to degrade because it is still seen as being of secondary importance. In order to determine development directions for large-scale residential districts, it is necessary to elaborate complex criteria for evaluation of the quality of the living environment. The principal task for further development of the living environment is the creation of a multi-functional and intensively utilised urban environment along with the preservation of the identity of the place, its improvement and harmonisation of environmental scale. As seen from a wider perspective of urban environment, priorities should be renovation and modernisation of the already existing densely populated areas, their humanisation ensuring accessibility to high-quality goods, services and public transport services. Such undertakings would motivate population not to leave their dwellings

and would not permit expansion of cities (Treija, 2008).

Conclusions

1. Each multi-storey residential territory in the Baltic Sea region is independent and shapes a certain spatial environment in a certain place and time. Today the existing residential fund is often paid little attention to which causes many irreversible problems for its further development. The ground principles of the functional structure planning are all the landscape composition elements and spatial environment features. The determined frameworks of the landscape composition in the multi-storey residential area show that its further developments will be able to create a more successful planning and more pleasant spatial environment for those territories which have features of degrading environment. A part of the multi-storey residential territory often undergoes unreasonable courtyard and residential area reconstructions. The great multi-functional load on the multi-storey residential area often remains unnoticed.
2. The main features on the multi-storey residential areas that, if developed and improved, may define

the ground principles and framework of the landscape composition, should be included in the development of the urban planning. The studied and analyzed examples of multi-storey residential areas of the Baltic Sea region, as well as the aspects of their modeling, formation and development, clearly reflect the ongoing processes in the researched sphere. Sweden and Finland present multiple successful reconstruction examples of the multi-storey residential areas, which could also be applied reconstructing the Baltic country residential regions. The enlisted solutions for the problems would improve the spatial development processes of the multi-storey residential areas. The multi-storey residential areas are the witnesses of time, and sometimes the features they carry should be maintained, allowing changes and improvements only in their spatial environment.

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