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Aspects of the historical transformation of the residential environment (based on the example of Astana city)

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Abstract. Urbanized spaces are evolving to meet societal needs, with residential structures being a crucial component of cities, including typological groups, complexes, blocks, and neighborhoods. Changes in the residential environment are a crucial aspect of urban and societal development. Transforming residential environments is directly linked to the dynamic modernization of cultural living standards. Historically established residential areas and buildings are undergoing renovation and adaptation to meet new city demands, involving physical changes, socio-cultural, economic, and environmental aspects.

The proposed article focuses on uncovering the transformation features of a specific period in the historical development of residential spaces. The research is based on the study and analysis of historically established spaces and reviews of theoretical perspectives by domestic and international scholars. It emphasizes the spatiotemporal and socio-environmental aspects of synthesizing transformed spaces.

In this context, the article addresses issues of transforming urban territorial units during the historical formation of spatial changes in the environment over a specific period. The study considers matters within the temporal framework of the late XXth and early XXIst centuries, with the aim of identifying the features of Akmola, the modern city of Astana, and the ways in which residential structures are undergoing transformation.

Keywords: transformation, residential structures, residential environment, adaptation.

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Introduction

The transition from social and political structures or state-planned systems to market economy relations leads to large-scale cataclysms. It undoubtedly changes all aspects of social life. During such periods, architecture development gains particular momentum and transforms under the new needs of the state [1].

At the present stage, Astana's rapid growth and construction are taking place not only in vacant areas but also in zones with established historical buildings and suburban regions. The master plan and detailed spatial layout of the district define the city's precise territorial boundaries and development. The master plan is a crucial urban planning document that outlines the architectural and planning structure as well as the growth dynamics of the city. The master plan for Astana focuses on creating a favorable living environment and promoting the city's sustainable development. It also aims to ensure environmental safety, preserve natural and cultural heritage, and effectively organize territorial, social, engineering, and transport infrastructure.

The transformation of the residential structures of the capital was mainly influenced by socio-economic and migration factors, as well as regional and historical aspects. Soviet development was supplemented with new components and a functional goal and transformed into actual needs [2].

Currently, the most relevant for Astana are the processes of intensive urbanization, issues of high density and point construction, improper implementation of the appropriate social, engineering, and transport infrastructure in residential areas, a formal approach to city design codes, and non-compliance with urban planning regulations.

Scientific and technological progress, improving living standards, and modern urban planning and architecture directions require qualitatively different approaches to solve master plans for developing residential structures that synthesize all previous historical experience in city formation.

Literature review

Issues and questions related to domestic housing have always attracted the attention of scientists, sociologists, architects, and other specialists. Numerous studies have been written on this topic, describing the state of housing structures in various regions and cities to varying degrees. This research considers the works of foreign and domestic scholars and the perspectives of professionals, architects, and urban planners.

For instance, the studies of domestic scholars G.S. Abdrassilova and E.T. Danibekova analyze the influence of political and economic changes in Kazakhstan on architecture. In contrast, N.G. Auzhanov discusses Astana's urban planning situation.

The scientific works of A.A. Kornilova and K.I. Samoilov comprehensively describes the stages of domestic architecture, the transformation of settlements, and the development of architectural forms within them.

In their research, a group of domestic scholars, including A.A. Toyshieva, A.D. Toyshieva, S.E. Mamedov, E.P. Harutyunyan, E.N. Khvan, and A. Amanbay, conducted a historical overview of the architecture of residential buildings and the residential environment in the territory of modern Astana during the XX-XXI centuries.

Another group of domestic scholars, including A.A. Kornilova, S.E. Mamedov, G.A. Karabayev, E.M. Khorovetskaya, and I.V. Laptev, studied issues related to comprehensive settlement, the processes of populating settlements, their transformation, urbanization, and the factors influencing the formation of architectural volumes.

The works of N.A. Saprykina, A.V. Ryabushin, A.A. Gaiduchenya, and A.I. Vyrlan address the dynamic transformation of urban architecture and residential environments and their elements. The formation of the city's architectural and planning structure and its elements is detailed in the works of V.A. Lavrov, G.M. Lappo, M. Ragon, K. Lynch, B.S. Khorev, L. Tonev, P. Velev, M.V. Pogudina, B.S. Khromov, and V. Zaslavsky.

In her research, E.R. Pestryakova proposed a logical model for the formation of the process of altering and adapting the internal space of the residential environment. She explored the hypothesis of transforming residential space during design by modifying architectural planning, volumetric-spatial, and compositional solutions.

T.N. Gatin addressed adaptation issues in a dynamically changing environment, emphasizing integration that meets modern requirements. Meanwhile, N.A. Saprykina proposed developing a methodology for shaping the living environment as a self-organizing system.

The work of Raphael Reiter, who applied combinatorics to transforming environments and spaces, deserves special mention. The author developed various options for structures and compositions depending on the type of space.

Thus, the research and works provided in this article differ from previous studies in fragmentation and consistency of analysis of the main stages of the formation and development of the urban residential environment, with the choice of presenting important insights and large-scale results in this direction.

The methodology

This article examines the main stages and the current state of the formation of the living environment in the context of developing the master plan for the city of Astana. The research methodology used by the authors is based on a consistent, comprehensive review of the solution to the problem. In the process, an integrated approach was utilized, which includes several research methods:

1. Method of studying archival data, scientific publications, scientific and educational-methodological literature, and the regulatory and technical framework. Within the framework of the study, theoretical concepts and scientific approaches were identified, and departmental materials (lists of residential buildings, complexes, and neighborhoods) from various historical periods were collected. At the initial stage of the research, materials reflecting the phased history of the development of the city's master plan were gathered;

2. Field research – conducted to identify the features of the architectural-planning and urban development structure transformation of the residential environment by performing fieldwork on residential structures of various typological groups;

3. Statistical and comparative analysis methods. Using official data from open sources, the statistical method allowed for collecting, analyzing, and generalizing data on population size, housing stock, and housing demand for specific periods during the city's development. Comparative analysis enabled the comparison of previous master plans, the identification of key development trends, and the distinction of their similarities and differences;

4. Method of result generalization. Due to the scale of this research, the final stage involved summarizing and clarifying the obtained results.

5. Sociological research method. Seventy participants were interviewed as part of a survey on current issues of urban planning organization and the residential environment in the city. The findings may be utilized to support prospective design methods that reflect people's and local communities' perspectives on future urban planning changes. The results were examined and organized into charts and tables.

Findings/Discussion

Numerous factors influence a settlement's spatial environment, each contributing its components to varying degrees. Nowadays, the issue of a comfortable urban environment has become highly relevant, involving an interdisciplinary approach to research and engaging both urban populations and residents of specific districts.

Amidst progressive urbanization, social destabilization, conflicts in urban planning structures in general, and physical degradation of certain residential formations, there is an increasing need to address comprehensive issues regarding the impact of comfort on the urban population's livelihood at various macro and micro spatial levels.

Given the unchanging evolutionary processes of the residential environment, which continuously acquires new qualities, solutions are required to neutralize and stabilize the creation of a favorable space.

The living environment, which occupies the leading and most significant part of the urban space, is an integral part of a comfortable environment. Numerous factors, including the natural, ecological, and anthropogenic environment, assess the comfort of the living environment. Under unfavorable climatic, ecological, and natural-landscape environments, an artificially created adaptable space emerges to meet human needs.

The residential environment is a system of complex structures and constantly evolving elements (infrastructure, social connections, and communications) that are directly linked to the physical and social space of the territorial unit. In this regard, it is essential to understand and study the residential environment not merely as an integral part of the city but as a living environment influenced by many factors.

Figure 1 illustrates the hierarchical structure of the residential environment, which today comprises components ranging from a simple apartment to the entire city.

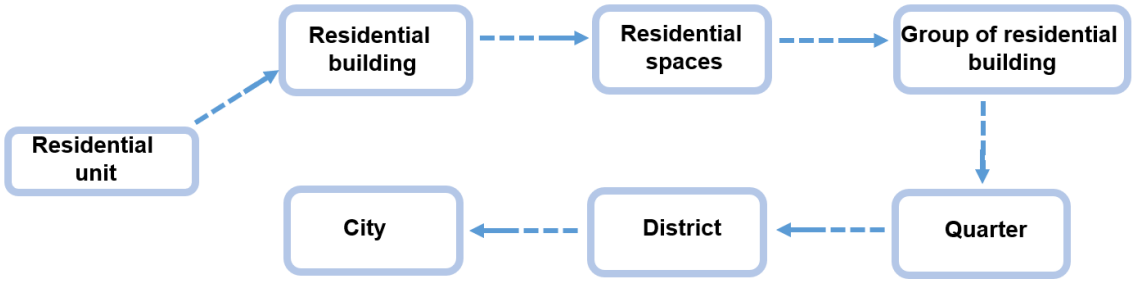


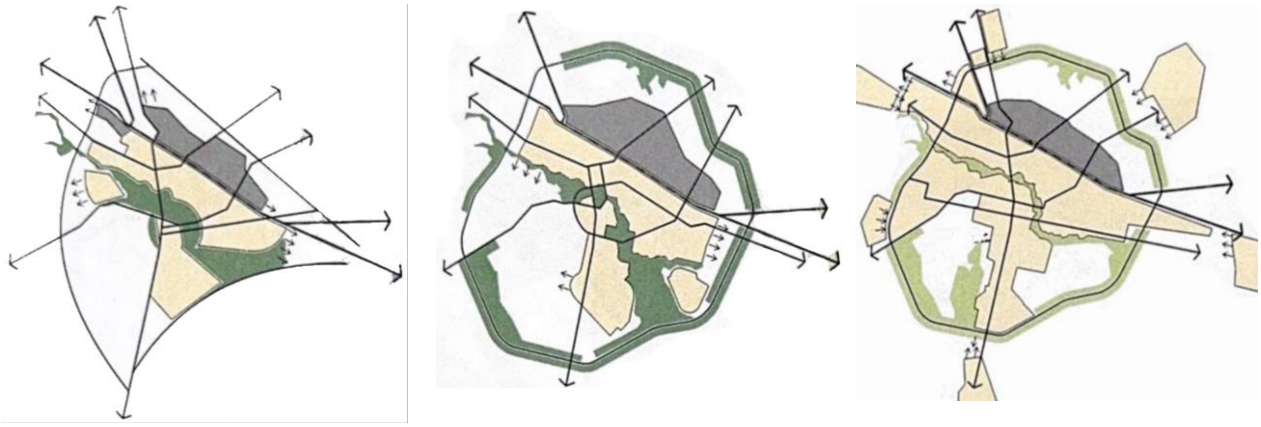
Figure 1. Structure of the residential environment [author's material]

Thus, to systematically study the residential environment, it is necessary to understand its morphological structure. From an urban planning perspective, the residential environment is considered a naturally evolving and investment-attractive space favorable to the self-realization of city residents.

The components of the residential environment being formed today are the most open and adaptable to the needs of all categories of citizens, who are subject to various short-term and rapidly changing trends.

Like any other city, modern Astana is shaped and developed by political, economic, and natural factors. Historical, evolutionary, and natural climatic factors have affected the city's architectural and planning structure, leading to both positive and negative consequences.

The development and transformative processes of the city's urban planning structure predetermine the prospective development, subsequent formation of reserve territories, and future construction. Astana's master plan has undergone several stages of competition, conceptual sketching, and expert evaluation involving domestic and international urban planners and architects.



a) b) c)

Figure 2. Master plans of Astana city [archival material]:
a) 1995, concept by K. Montakhaev, developed by «Ak-Orda» LLP;
b) 2000, developed by Saudi Binladin Group;
c) 2010, adjustment of the concept by Kisho Kurokawa.

Figure 2 illustrates the critical master plans of Astana city, clearly showing the dynamics of the development of the residential and prospective zones.

The city's natural growth and population expansion significantly influence its morphological structure. The rapid population increase and the need to create favorable living conditions, along with Astana's status as the capital of Kazakhstan, necessitate a revision of the architectural and planning solutions of the master plan and the principles for forming residential structures as a whole.

Astana's historically developed residential environment was analyzed and divided into critical stages during the research.

The city in the 1950s-1970s

The period of virgin and fallow land development was marked by a significant influx of working populations that needed to be provided with housing as soon as possible. As a result, the city of Tselinograd began constructing new types of five-story residential buildings, which were innovative for that time. Later, between 1967 and 1970, the first nine-story and twelve-story buildings were built based on standard projects of the Soviet period. These new residential buildings gradually replaced the barrack-style housing, creating compact courtyards and landscaped areas. In 1962, residential blocks with 115,000 square meters were commissioned. The city's population grew dynamically, reaching 181,000 by 1970 and approximately 233,000 by 1980. New neighborhoods, such as Molodyozhny, began to form on the city's vacant lands. The construction of civil buildings continued intensively, primarily on the right bank of the river. The left bank was reserved for recreational activities featuring country cooperatives, beaches, and more. At that time, the residential environment only met the primary and modest needs of the population. Figure 3 shows an archival photograph of the construction of a residential building on N. Monina Street and its current state.

a) b)

Figure 3.
a) construction of residential buildings on N. Monin street (Yessenberlin street), 1958.
b) the current state of the building, 2024 [author's material].

Cities in the 1980s-1990s

According to the general plan developed by SDI «Kazgiprograd» and approved in 1987, construction in Akmola continued within the limits of the right bank of the Ishim River. The general plan envisioned the city's development along the right-bank course of the river. Between 1986 and 1990, the volume of housing construction significantly increased, as did the amount of individual housing with corresponding engineering and transport infrastructure. By 1988, the city's population had reached 286,300 people.

Kazakhstan's independence and the government's decision to relocate the capital to Akmola significantly impacted the city's subsequent development and transformation. The adopted Law «On Special Economic Zones in the Republic of Kazakhstan» aimed to attract and develop investments from foreign companies in the territory of the future capital for conducting negotiations and business andal. This required well-developed infrastructure for conducting negotiations and business and for the temporary or permanent residence of guests and foreign workers. The city required radical changes in its functional-planning, spatial-territorial structures, and economic, social, and cultural processes.

As shown in Figures 4 and 5, by 1997, Akmola was a small city with a population of 287,000. It had underdeveloped cultural, domestic, and service systems, simple Soviet-era architecture, and predominantly monofunctional public buildings. The city's outskirts were mainly populated by country settlements, garage cooperatives, small worker villages, and vacant lands [4].

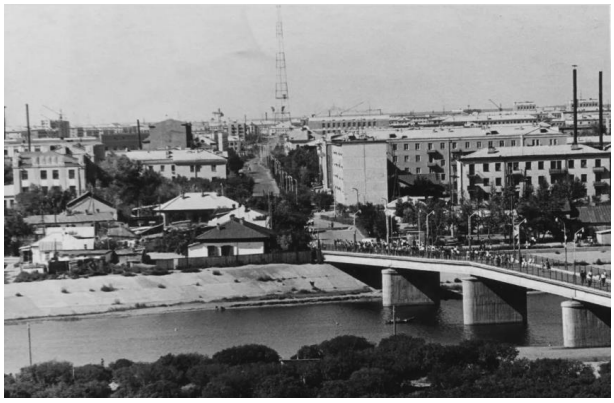


Figure 4. The Ishim River embankment, Akmola city [from the authors' archive]

Figure 5. «Hannover» restaurant, Akmola city, 1990 [from the authors' archive]

The city’s new status necessitated significant transformations in its geopolitical, socio-economic, and administrative-management structures and its historically established urban fabric. This included the creation of new districts and blocks, the development of the street-road network, and the establishment of cultural and recreational centers [5]. Architects of that period faced the task of developing a concept for a comfortable city that would meet the requirements of the XXI-century capital.

Attracting investments, fostering small and medium-sized businesses in the capital, and preparing spaces for them were among the top priorities. However, at that time, construction focused on strategically important facilities. As shown in Figure 6, one solution was to transform the ground floors of residential buildings into non-residential spaces [6]. This approach proved

relevant and later became standard practice during the design phase, with all new residential buildings and complexes being planned with developed commercial areas on their lower levels.

Figure 7 illustrates how transformations influenced the external architectural appearance during subsequent redevelopment. Existing Soviet-era building facades were repainted and decorated to align with the city's new capital status [7].

Figure 6. Soviet-era residential building on Satpayev Street, Astana, Kazakhstan [author's material]

Figure 7. Soviet-era residential building (Series 335) on Respublika Avenue, Astana, Kazakhstan [author's material]

The Beginning of the 21st Century

The rapid housing development in Astana, starting in the 2000s, brought about various issues. These included spot and high-density construction, a lack of adequate social infrastructure, forecasting errors in the serviced population's size, insufficient local recreational areas, transport accessibility challenges, neglect of the anthropogenic landscape, weak landscape organization, and limited greening. Actual growth rates outpaced forecasts, and the city needed to prepare for such developments.

The relocation of the capital significantly impacted internal and external migration. Residents from nearby settlements and small to medium-sized cities began migrating en masse to Astana for better living conditions. Labor migrants, young families, students, and foreign guests required permanent and temporary housing, with demand increasing daily. The housing issue had social causes and remains one of the city's pressing problems today.

Promising areas of the city were actively developed with new residential complexes. Seasonal (temporary) housing was increasingly converted into permanent residences, and the land use designation of plots was changed. As a result, summer garden houses in dacha zones were more frequently used as temporary or permanent housing for those in need. Figure 8 shows how some of these houses retained their original architectural appearance. They were retrofitted and transformed into stationary housing.

Figure 9 illustrates the construction of full-fledged one – or two-story residential houses in some areas. These houses were often accompanied by additional spaces for individual entrepreneurial activities, such as small shops, hair salons, tailoring ateliers, workshops, service stations, and others. These facilities helped address the shortage of social infrastructure in the newly developed areas.

Figure 8. Garden houses of the «Aviator» country house community.
Astana, Kazakhstan [author's material]

Figure 9. Modern cottages in the structure of the «Aviator» country house community.
Astana, Kazakhstan [author's material]

Currently, such a situation is observed not only in county house communities but also in residential areas on the outskirts of the city and in the historically established estate-type architecture of the central districts. These areas, which were chaotically formed, insufficiently organized, or completely neglected by local authorities, exhibited high social tension. The population lacked access to basic amenities for comfortable living and socio-cultural processes, such as recreational areas, equipped playgrounds, proper landscaping of courtyards and streets, lighting, and convenient pedestrian and transport paths.

The old houses on the right bank near the trade houses in the Artyom, Alem, and Shapagat districts (formerly the TselinSelymash and Zavodskoy areas) had long been converted into boutiques, shops, and retail stores. The current disorder and illegal trading in the area date back to the late 1990s and early 2000s, when the central city market existed at the location of these trade houses.

According to the city development master plan, most of these residential areas are set to be demolished, with multi-story residential complexes and social and cultural facilities being built in their place.

Transforming the built environment involves adapting it to the contemporary needs of human life [8]. Housing must constantly align with consumer demands and be flexible enough to respond to them [9].

The study of transforming environments is a complex issue encompassing social, demographic, architectural-typological, engineering-technical, and aesthetic aspects. Comprehensive research requires extensive analysis and predictions for further development [10].

It is important to note that the living environment results from the long historical development of a family and its housing. It is shaped by society's social, economic, historical, and cultural activities and continues to evolve [11].

Housing conditions should correspond to the individual characteristics of the consumer, specific order, and lifestyle [12]. To create such an environment, it is necessary to study human needs, interests, and desires and adapt them to the unified context of home life [13].

Analyzing the principle of changing historically established and existing realities, the main structural elements of human life influencing the architectural-planning organization of housing were identified, including:

1) The age of family members, their level of development, and the influence of traditions;

2) The standard of living and quality of life;

3) The way of thinking and character of individuals;

4) The methods of household management (regime and daily routine, specific household and domestic processes).

Universal architectural-planning and technological solutions offer multiple options for the use of spaces [14].

A universal functional space allows for the integration of residential and non-residential areas. The transforming space becomes an infinite environment:

– Transforming into a leisure area;

– Transforming into a communication area;

– Transforming into a work area;

– Transforming into a learning area.

The built environment's dynamic adaptation to changing reality and societal development needs determines the necessity of developing and implementing a fundamentally new approach to creating architectural objects by utilizing their intense characteristics of formation. Organizing an architecturally adapted space can be made possible by transferring modern concepts [15].

Current state and prognostic trends in the development of the living environment

Today, global practices in studying the issue of comfortable living environments prove that urban residential areas are a resource for implementing new commercial and construction projects and a link between newly developed and historically established built-up areas. The practices of previous years, when residential neighborhoods and districts were designed with centralized systems, created living environments with acceptable limits in content and spatial organization. Residents were passive participants, which is no longer relevant or practical. Modern realities and the latest approaches require active social involvement between the

«provider» and the consumer, conducting comprehensive pre-design, social, and research work, detailed analysis, and consideration of the population's needs to form the most beneficial model for future or reconstructed spaces.

Currently, the master plan concept of «Astana - comfortable city» is being successfully implemented in Astana at all macro and micro spatial levels of the capital. The main goals of the concept are to create a city for people, organize the transport infrastructure, redevelop areas, improve environmental sustainability and energy efficiency, and expand biodiversity in local zones of the city. Transformation strategies for residential areas mainly focus on improving public spaces, equipping playgrounds and sports areas with diverse equipment for all age groups, landscaping, creating small recreational islands in tight conditions, improving pedestrian and transport accessibility, and developing social infrastructure with a focus on ecological sustainability. All of these aspects should interact and integrate with the urban scale, form a program of viability, and align with sustainable development goals. The current concept has successfully implemented design solutions for improving areas and creating recreational zones in local sites with the highest demand.

During the research process, a socio-demographic analysis of the population was conducted, allowing for the identification of preferences from respondents across different city neighborhoods. The survey included questions related to the qualitative spatial and environmental content, urban landscaping, and the assessment of the level of comfortable living in the surveyed areas and the city. The empirical data gathered was analyzed, processed, and presented in the diagram shown in Figure 10.

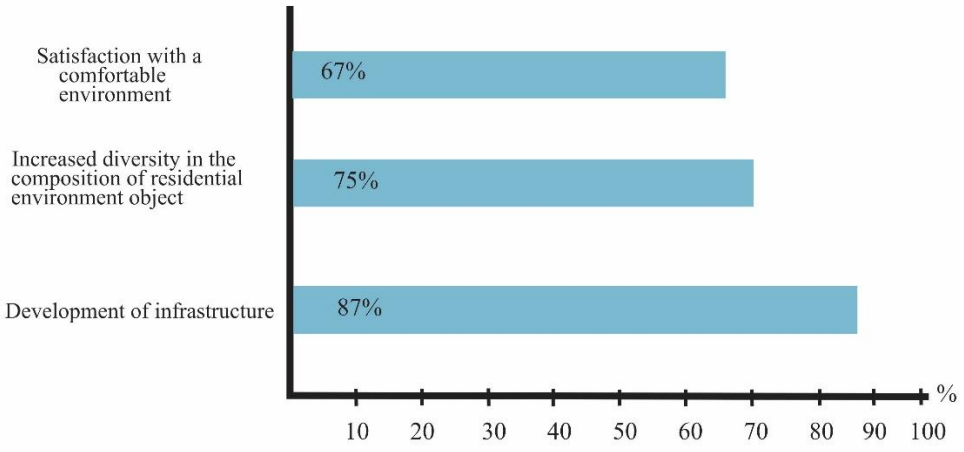


Figure 10. Results of the sociological survey

One hundred forty-seven respondents from local areas of the city were interviewed based on the social survey. The results were analyzed, and the conclusions drawn from them influenced the research's outcome.

The result of the present study is the conceptual-theoretical model of the formation of the residential environment, as shown in Figure 11.

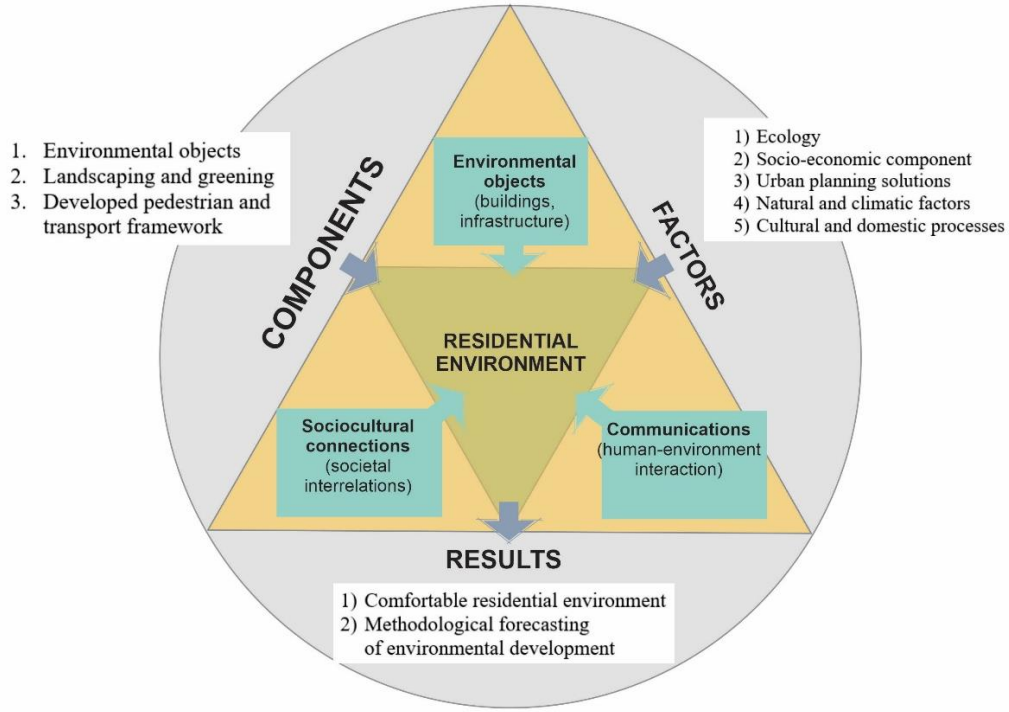


Figure 11. Model of residential environment formation

Conclusion

The analysis conducted allowed for the identification of the main stages of the transformation of the residential environment in the studied territorial geospatial area, highlighting its most relevant development and formation issues, determining further structuring, and establishing the following:

1. Three main components were identified as forming a comfortable living environment: environmental objects (buildings, infrastructure), socio-cultural connections (interaction of society), and communications (interaction of people with the environment). The combined integrated work of these components results in a high-quality organization of the living environment and comfortable living in it;

2. The residential environment has a decisive local influence on the subjects (people) and the process of their daily lives;

3. The residential environment is a self-developing system. The organization of the modern living environment is a complex self-forming system;

4. The process of creating architectural solutions during the design of residential buildings cannot be considered without determining the favorable living conditions for a person in the housing environment;

5. At the architectural-planning level, using the above principles of transforming the residential environment allows for the most effective socio-economic solutions to be made during the design process;

6. Transformation and adaptation are closely connected to ecological, socio-demographic, psychological, and economic aspects, which, in turn, form architectural-planning solutions that allow residential structures to be considered at a high scientific level;

7. Transformed residential buildings and all their functional components, such as equipment, interior and exterior volumes, environmental conditions, and people's changing needs, can change year after year.

Acknowledgments and conflict of interest

The research was conducted using private funding sources.

The authors declare that there is no conflict of interest.

The contribution of the authors

Yessenbayev A.M. – data collection and analysis, development of the research concept and methodology, writing of the article.

Musabayev T.T. – critical analysis of the work, editing, and final approval of the publication version.

Kornilova A.A. – critical analysis of the work, editing.

Chekaeva R.U. – generation of the research idea, editing the work.

References

1. Abdrassilova G., Danibekova E. (2021). The transformation of modern architecture in Kazakhstan: from soviet “internationalism” to a post-soviet understanding of the regional identity. Spatium 46, 73-80. DOI: https://doi.org/10.2298/SPAT2146073A

2. Resolution of the Government of the Republic of Kazakhstan dated August 15, 2001 №1064 «On the Master Plan of Astana» [Postanovlenie Pravitel'stva Respubliki Kazahstan ot 15 avgusta 2001 goda №1064 «O general'nom plane goroda Astany»] (In Russ.). [PDF file]. Retrieved from: https://adilet.zan.kz

3. Auzhanov N.G. (2000). Astana – a leap into the XXI century. Urban planning aspects of development [Astana – pryzhok v XXI vek. Gradostroitel'nye aspekty razvitiya]. (In Russ.). [PDF file]. Retrieved from: https://www.ecopolis.kz

4. Kornilova A.A. (2003). Theoretical foundations of the transformation of the architectural and planning structure of villages in Northern Kazakhstan [Teoreticheskie osnovy transformacii arhitekturno- planirovochnoj struktury sel Severnogo Kazahstana]. Dissertation for the degree of Doctor of Architecture. Astana. (In Russ.).

5. Samoilov K. I. (2004) Architecture of Kazakhstan of the XX (development of architectural and artistic forms). [Arhitektura Kazahstana XX veka (razvitie arhitekturno-hudozhestvennyh form)]. (In Russ.). [PDF file]. Retrieved from: https://tehne.com

6. Toishiyeva A. A., Toishiyeva A. D., Mamedov S. E. O., Harutyunyan E. P., Khvan Y. N., Amanbay A. (2023). Development of the Architecture of Residential Buildings from the Beginning of XX to XXI Century (By the Example of Astana). Civil Engineering and Architecture, 11(3), 1220 - 1233. https://doi.org/10.13189/cea.2023.110308

7. Kornilova A.A., Mamedov S.E.O., Karabayev G.A., Khorovetskaya Y.M., Lapteva I.V. (2022). Identification of Regional Factors Affecting Management of Territories: Formation of Residence and Social Infrastructure System in Urban and Rural Settlements in Kazakhstan Journal of Environmental Management and Tourism, 13(8), 2248–2254 https://doi.org/10.14505/jemt.13.8(64).17

8. Saprykina N.A. (2005). Fundamentals of dynamic shaping in architecture [Osnovy dinamicheskogo formoobrazovaniya v arhitekture]. Moscow: "Architecture-S". (In Russ.).

9. Ryabushin A.V. (1976). Development of the residential environment. Problems, patterns, trends [Razvitie zhiloj sredy. Problemy, zakonomernosti, tendencii]. Moscow.: Stroyizdat.

10. Pestryakova E.R. (2022). Principles of formation of architectural and planning organization of social residential buildings taking into account transformation aspect/ 12.2. 113-119. https://doi.org/10.17673/10.17673/vestnik.2022.02.15

11. Gaiduchenya A.A. (1982). Dynamic architecture: The main directions of development, principles, methods. Kiev: Budivelnik [Dinamicheskaya arhitektura: Osnovnye napravleniya razvitiya, principy, metody]. (In Russ.).

12. Vyrlan A.I. (2016). Transformation of elements of the modern urban environment [Transformacii elementov sovremennoj gorodskoj sredy]. (In Russ.). URL: https://book.uraic.ru

13. Gatin T.N. (2020). Trends in the formation of transformations in the architecture of public buildings [Tendencii formirovaniya transformacij v arhitekture obshchestvennyh zdanij]. (In Russ.). Noema 2(5). URL: https://cyberleninka.ru

14. Raphael Reuter. (2020) Space-savinq techniques by the use of transformable architecture. [In Russ.]. URL: https://repository.tudelft.nl

15. Saprykina N.A. (2015). Features of habitat formation in the context of dynamic adaptation of architectural space. Volga Scientific Bulletin 1 (41). [Osobennosti formirovaniya sredy obitaniya v kontekste dinamicheskoj adaptacii arhitekturnogo prostranstva. Privolzhskij nauchnyj vestnik]. (In Russ.). URL: https://cyberleninka.ru

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Исторические аспекты трансформации жилой среды (на примере г. Астана)

Аннотация. В настоящее время урбанизированные пространства активно растут и постоянно развиваются в соответствии с меняющимися потребностями общества. Важной частью любого города являются жилые образования, типологические группы жилых домов, жилые комплексы, кварталы и микрорайоны. Изменение жилищной среды является важным аспектом развития городов и общества в целом. Процессы трансформации жилой среды напрямую связаны с динамично модернизированной культурой жизни. Геопространственное и цифровое развитие города влияет на существующий рост, изменяет его и придает ему новый статус. Сегодня исторически сложившиеся жилые районы и здания нуждаются в реконструкции и обновлении,

чтобы адаптироваться к новым требованиям и потребностям жителей и гостей города. Такая трансформация включает не только физические изменения, но и социокультурные, экономические и экологические аспекты.

Представленная статья направлена на раскрытие особенностей трансформации определенного этапа исторического становления жилого пространства. Основой исследования является изучение и анализ исторически сложившегося пространства, а также обзор материалов, созданных на основе теоретических подходов отечественных и зарубежных ученых, изучавших пространственно-временной и социально-средовой аспект в синтезе трансформируемого пространства.

В связи с этим в ходе исторического формирования пространственных изменений окружающей среды за определенный период времени затрагиваются вопросы трансформации конкретной градостроительной территориальной единицы. Рассматриваемые в работе вопросы охватывают временные границы конца XX-начала XXI веков и направлены на выявление особенностей Акмолинской, современной Астаны и трансформирующихся жилых структур.

Ключевые слова: трансформация, жилые образования, жилая среда, адаптация.

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Тұрғын ортаның тарихи трансформациялау аспектілері (Астана қ. мысалы негізінде)

Аңдатпа. Қазіргі уақытта урбанизацияланған кеңістіктер белсенді түрде өсіп, қоғамның өзгеретін қажеттіліктеріне сәйкес дамуда. Кез келген қаланың маңызды бөлігі – тұрғын үй құрылымдары, тұрғын үйлердің типологиялық топтары, тұрғын үй кешендері, кварталдар мен шағын аудандар болып табылады. Тұрғын үй ортасының өзгеруі қалалар мен жалпы қоғам дамуының маңызды аспектісі болып табылады. Тұрғын ортаны трансформациялау процестері динамикалық модернизацияланған өмір мәдениетімен тікелей байланысты. Қаланың геокеңістіктік және сандық дамуы қалыптасқан өсуіне әсер етеді, оны өзгертеді және оған жаңа мәртебе береді. Бүгінгі күні тарихи қалыптасқан тұрғын аудандар мен ғимараттар қала тұрғындары мен қонақтарының жаңа талаптары мен қажеттіліктеріне бейімделу үшін қайта құру мен жаңартуды қажет етеді. Мұндай трансформация тек физикалық өзгерістерді ғана емес, сонымен қатар әлеуметтік-мәдени, экономикалық және экологиялық аспектілерді де қамтиды.

Ұсынылған мақала тұрғын үй кеңістігінің тарихи қалыптасуының белгілі бір кезеңінің трансформация ерекшеліктерін ашуға бағытталған. Зерттеудің негізі тарихи қалыптасқан кеңістіктізерттеужәнеталдау,сондай-ақтрансформацияланатынкеңістіксинтезіндегікеңістіктіуақыттық және әлеуметтік-орта аспектіні зерттеген отандық және шетелдік ғалымдардың теориялық көзқарастары негізінде жасалған материалдарға шолу болып табылады.

Осыған байланысты белгілі бір уақыт кезеңіндегі қоршаған ортаның кеңістіктік өзгерісін тарихи қалыптастыру барысында нақты қала құрылысы аумақтық бірлігін трансформациялау мәселелері қозғалады. Жұмыста қарастырылған мәселелер XX ғасырдың аяғы мен XXI ғасырдың

басындағы уақытша шекараларды қамтиды және Ақмола, қазіргі Астана трансформацияланатын тұрғын құрылымдарының ерекшеліктерін анықтауға бағытталған.

Түйін сөздер: трансформация, тұрғын үй құрылымдары, тұрғын орта, бейімделу.

References

1. Abdrassilova G., Danibekova E. (2021). The transformation of modern architecture in Kazakhstan: from soviet “internationalism” to a post-soviet understanding of the regional identity. Spatium 46, 73-80. DOI: https://doi.org/10.2298/SPAT2146073A

2. Resolution of the Government of the Republic of Kazakhstan dated August 15, 2001 №1064 «On the Master Plan of Astana» [Postanovlenie Pravitel'stva Respubliki Kazahstan ot 15 avgusta 2001 goda №1064 «O general'nom plane goroda Astany»] (In Russ.). [PDF file]. Retrieved from: https://adilet.zan.kz

3. Auzhanov N.G. (2000). Astana – a leap into the XXI century. Urban planning aspects of development [Astana – pryzhok v XXI vek. Gradostroitel'nye aspekty razvitiya]. (In Russ.). [PDF file]. Retrieved from: https://www.ecopolis.kz

4. Kornilova A.A. (2003). Theoretical foundations of the transformation of the architectural and planning structure of villages in Northern Kazakhstan [Teoreticheskie osnovy transformacii arhitekturno- planirovochnoj struktury sel Severnogo Kazahstana]. Dissertation for the degree of Doctor of Architecture. Astana. (In Russ.).

5. Samoilov K I. (2004) Architecture of Kazakhstan of the XX (development of architectural and artistic forms). [Arhitektura Kazahstana XX veka (razvitie arhitekturno-hudozhestvennyh form)]. (In Russ.). [PDF file]. Retrieved from: https://tehne.com

6. Toishiyeva A.A., Toishiyeva A. D., Mamedov S. E. O., Harutyunyan E. P., Khvan Y. N., Amanbay A. (2023). Development of the Architecture of Residential Buildings from the Beginning of XX to XXI Century (By the Example of Astana). Civil Engineering and Architecture, 11(3), 1220 - 1233. https://doi.org/10.13189/cea.2023.110308

7. Kornilova A.A., Mamedov S.E.O., Karabayev G.A., Khorovetskaya Y.M., Lapteva I.V. (2022). Identification of Regional Factors Affecting Management of Territories: Formation of Residence and Social Infrastructure System in Urban and Rural Settlements in Kazakhstan Journal of Environmental Management and Tourism, 13(8), 2248–2254 https://doi.org/10.14505/jemt.13.8(64).17

8. Saprykina N.A. (2005). Fundamentals of dynamic shaping in architecture [Osnovy dinamicheskogo formoobrazovaniya v arhitekture]. Moscow: "Architecture-S". (In Russ.).

9. Ryabushin A.V. (1976). Development of the residential environment. Problems, patterns, trends [Razvitie zhiloj sredy. Problemy, zakonomernosti, tendencii]. Moscow.: Stroyizdat.

10. Pestryakova E.R. (2022). Principles of formation of architectural and planning organization of social residential buildings taking into account transformation aspect/ 12.2. 113-119. https://doi.org/10.17673/10.17673/vestnik.2022.02.15

11. Gaiduchenya A.A. (1982). Dynamic architecture: The main directions of development, principles, methods. Kiev: Budivelnik [Dinamicheskaya arhitektura: Osnovnye napravleniya razvitiya, principy, metody]. (In Russ.).

12. Vyrlan A.I. (2016). Transformation of elements of the modern urban environment [Transformacii elementov sovremennoj gorodskoj sredy]. (In Russ.). URL: https://book.uraic.ru

13. Gatin T.N. (2020). Trends in the formation of transformations in the architecture of public buildings [Tendencii formirovaniya transformacij v arhitekture obshchestvennyh zdanij]. (In Russ.). Noema 2(5). URL: https://cyberleninka.ru

14. Raphael Reuter. (2020) Space-savinq techniques by the use of transformable architecture. [In Russ.]. URL: https://repository.tudelft.nl

15. Saprykina N.A. (2015). Features of habitat formation in the context of dynamic adaptation of architectural space. Volga Scientific Bulletin 1 (41). [Osobennosti formirovaniya sredy obitaniya v kontekste dinamicheskoj adaptacii arhitekturnogo prostranstva. Privolzhskij nauchnyj vestnik]. (In Russ.). URL: https://cyberleninka.ru

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