Formation of multistory residential complexes for Nukus City

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Abstract. The article reflects the current state of housing construction in the Republic of Karakalpakstan and in the city of Nukus in a hot climate. The impact of the external environment of low-rise and multistory residential buildings, their description and their impact on the architecture of the buildings are considered. Targets and ways to improve housing projects have been identified.

1 Introduction

It is known that the balanced development of the economy of our country, its effective structure and the achievement of sustainable economic growth are essential conditions for the development of our country and the well-being of the people. First of all, to achieve this goal, it is necessary to improve the living standards of the population and also further improve the condition of residential and non-residential buildings which created for their residence and operation, provide them with modern equipment and technologies. For short-term in our country, the big creative works have been done and the living conditions of the population have been created in thousand apartment houses.

In many of our President's writings, with views and opinions on the basic principles of our reforms, the necessity to improve low-income habitation has been emphasized, which should turn it into beautiful public places. Such popular slogans as «Reform not for reforms, and for people» and «do not destroy the house, without having constructed new», are widely used and supported by our people. Of course, it is not in vain. In research work they have been accepted as the basic social tasks.

It is vital to realize improvements of habitation, to transform them into a public place, first of all, to finish it to the level which is meeting the requirements of the modern world. The sociological and cultural development of residential complexes is becoming a very important state and nationwide task and an integral part of the current agrarian policy of our government.

In public centers of comfortable and cozy residential buildings of residential areas, rural, medical posts, building of spacious and comfortable zones of rest, cultural, domestic and social facilities is also to build one of the urgent tasks of today. In the existing

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settlements, administrative buildings in the oriental style are being erected, the population is served by hairdressers, pharmacies, teahouses, shops and medical offices. This topic is based on the direction of solving the most important tasks that improve the social life and economic development of the population of the republic.

At the present stage of development of the Republic of Uzbekistan, it is necessary to sharply develop the construction of public centers in settlements, and one of the most pressing issues is to meet the needs of the population in the network of public buildings and their restoration.

One of the urgent tasks of today is a high natural growth of the population, the level of satisfaction of the needs of the population in cultural, social, spiritual and material services, facilities and social facilities. Since the Republic of Uzbekistan gained independence, the government has paid special attention to the field of architecture and urban planning, and a number of decrees of the President and the Cabinet of Ministers of the Republic of Uzbekistan have been adopted in that area.

At the present stage of development of the Republic of Uzbekistan, it is important to sharply develop housing construction. Solving the needs of the population in various types of public buildings and their renovation is one of the most pressing problems.

The sociological information. According to the report of the Republic of Karakalpakstan for 2018, the population is 1,842.30 thousand people, including 905.5 thousand people in the city, rural population is 936.8 thousand people. The number of decent work is 996.3 thousand people. Of these, Nukus city - 272. Beruniy - 58.7. Takhiyatash - 47.5. Mangit 35.4. people etc [1].

52% of the country's population lives in cities. Nukus is home to almost 16.6% of the total population of the Republic. The area bordering the city is a desert zone.

The ecological information. The activity of the housing construction process in Karakalpakstan has made it necessary to take into account the ecological factors of the city and the environment at the present stage, to improve and protect the man-made environment under the influence of civilization.

Dmitriev M.V. Shnekev J.K. and others have researched the practice of architectural construction in the Republic of Karakalpakstan as well as Nukus city, and found that the natural climatic conditions are not fully taken into account, and that the national way of life in the dwellings built is peculiar. The urgency of the problem is growing, as well as in the accumulated experience hot climate and architecture are one of the most important modern problems in the environment and now requires serious analysis. There is a clear need for conscious and good use in the practice and boundaries of urban construction [2-6].

A geographical environment which is rigid and sufficiently unresolved is a climatic and natural condition. There is an even more important problem. The natural climate is associated with architectural solutions. Nowadays, it is important for people to consider the need, impact, design and construction of an artificial microclimate. This provides a basis for a more in-depth study of natural climatic conditions. The uniqueness of the national population can be seen in the example of the city of Nukus (population around 100 thousand families) which is located in the desert zone. The city is located in the north-west on the banks of the Amu Darya River and is being developed in the sandy Kyzyl Kum desert in the western direction. Two canals which is on the city border, near the Amu Darya river, not far from the city center, at a distance of 1.5 km intersect. The length of the Channel “Kattaagar” is 3.5 km and the width of the “Dosliq” is about 50 m. The region is characterized by a dry hot climate, repeated dust storms. Research shows that the South Island has a hot and dry climate (350-470°C). In the north, Ustyurt which is located in the western part of Karakalpakstan, is a large Sahara plain and it is located at an altitude of 200 m, the eastern part of the Kyzylkum
The climate of Karakalpakstan is subtropical, mainly dry and rapidly changing, significantly cold, but as a result of long-term controls in winter (−40°C) and summer (+48°C) air layer complications do not rise by 110 mm in 1 year. Vegetation period lasts 194-214 days. The humidity in the Republic of Karakalpakstan is very low. If the humidity in Chimbay in July was 16.1 millimeters, then in Turtkul it is 12.1. Humidity in Kungrad and 3.1 millimeters in Chimbay for January. In Turtkul, it is 3.3 millimeters. Most of the average annual air blowing speed in Karakalpakstan is 2.5 to 4.6 meter/sec, and the direction of the wind is mainly from the north-east. In spring and summer they blow very fast at a speed of 10 meter/sec. Dusty and dry wind is “garmsel”. Strong winds bring sand dust from the Kyzylkum and Aral Sea deserts. It doesn’t rain much.

The Republic of Karakalpakstan is a desert and semi-desert with its own landscape and climatic conditions. The main soil of Ustyurt and Kyzylkum is sandy. According to researchers, the level of groundwater on the border with Karakalpak will increase from 1.93 m to 3.1 m. For example, the level of the city of Nukus is from 1.2 to 2.90 m, 6 m in the Muynak district, the average level ranges from 5.26 m to 6 m. Seismicity is 5 points in the northern part of Karakalpak and 6-7 points in the southern part. An earthquake-resistant constructive solution is used in the construction of multi-storey residential buildings.

The Republic of Karakalpakstan is located in the north-west of the Republic of Uzbekistan. It borders with the Republic of Kazakhstan in the north-east and north-west in the north, the Republic of Turkmenistan in the south and south-west, and the Navoi region which is situated in the south and south-east of Khorezm. The coordinates of the location are 40°055`45"035 North latitude, 56°00`62"024 East longitude. The total area of the border is 166.6 thousand km². 420 km from north to south, 660 km from west to east. Such a location causes separate regions not to arrive on time at certain seasons. The Republic of Uzbekistan is divided into 3 climatic zones. District 1 is divided into 1a, 1b, 1v, 1g or 4 parts. From them: There is no 1b on the border of Karakalpakstan. In the climatic zone 1g there are Kungirod, Chimbay, Takhtakupir, Karaozak, Muynak regions. The 1C area also includes other areas. The climate of the boundary of the I zone is influenced by the climate of deserts in summer conditions. Accommodations for this area have an indoor and outdoor courtyard [9-14].

Specific humidity and wind speeds in the adjacent areas and in the main buildings are conditionally separated into a quiet zone, the temperature checks which is carried out in the territorial and communication space are considered.

Urban planning issues. The architectural and spatial solution is considered to be the study of residential premises with a unique design solution in compliance with street, corner and island location. In residential buildings, it has access to ground structures (types 1, 2, 5) or from the yard (types 3, 4). The outer walls are made of clay bricks (types 1, 2, 3). The thick of baked bricks (4 types) are 40 cm and the thick of concrete (5 types) are 30 cm. The examined dwellings are one-story (1, 2, 3, 4 different) and multi-story which has an attic (2, 3, 4 types) or no (type 1) cover [15-18].

On the issues raised above and according to J. Shnekeev. It is necessary to draw conclusions about the need for a deeper study of multi-storey buildings which were built on the issues with the maximum consistency on environmental issues and discussed.

2 Methods
Many scientific studies have been carried out on multi-story buildings. These research and design institutes in the CIS countries are TsNIIEP of residential buildings (Moscow), TashZNIIEP (Tashkent), LenZNIIEP (Leningrad) and others. Higher education institutions on this topic have also carried out research on these objects. A large number of studies have been carried out in foreign countries.

Architects and scientists from the CIS (Commonwealth of Independent States) countries have worked on environmental and climatic issues. These works were taken as examples of creativity. They have researched and applied multi-storey buildings in a variety of economic conditions. The main research work was carried out at the TashZNIEP Institute.

Some multi-storey residential complexes which were adapted the cold northern climatic conditions created and their historical solutions are considered. These were G.A.Ol, G.V.Rimskaya-Korsakova, V.G.Tankoyan, B.V Muraveva the Candida te of Architectural Sciences, LV Yakovleva the Candidate of Architectural Sciences, TM Palonova Climatologist (Climatologist), TI Alekseeva and AL. Yastrebova the candidates of Technical Sciences on Natural and Climatic Problems, AL Evtikhieva for technical issues. Not only their types but the introduction of separate requirement for multi-storey residential complexes were included on the basis of LenZNIEP research.

3 Results and discussion

The main boundaries of research directions on the above issues, initial conditions, the basis of research results, indicators, prerequisites for success are determined and the following results are expected:

- to define and create the types of architectural spatial forms which were being taking into account the main direction of dry hot winds in the design solutions of multi-story buildings in the city in the design solutions on the state history.

- to determine the importance of creating a microclimate of buildings, perennials, small architectural forms, streets and other objects in the environment as a result of design research in general history solutions, and also determine their quantitative and other indicators.

4 Conclusion

According to the results of many studies and various studies, it was noted that the most important aspect of the architectural and planning solution for the urban population is the impact on their live style and the necessity which takes more pay attention to environmental problems. The required economic, internal microclimate data for multi-storey buildings are insufficient and they require extensive-planned research. It is necessary to determine the level of indicators of the scale of the building, including the amount of time spent on household services and the size of the construction area.

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