

THE CONCEPT OF URBAN FRAMEWORK OF RESIDENTIAL AND WORK ENVIRONMENT: EXAMPLE OF AZERBAIJAN

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Abstract

In the research article, the author tried to connect conceptually the information about various priorities of different approaches to the concept of "framework" in architecture and town planning and to act with the philosophy of a uniform town-planning framework of the residential and work environment. The town-planning framework in his comprehension is multifactorial, multilevel and diverse, but as a result is the forming main carcass, a framework of the human habitat where dominant guides are labor, welfare, and recreation of the individual. Formation of a full-fledged habitat ensuring optimum living conditions of the population is estimated in Azerbaijan as one of the priority areas of human rights and the achievement of sustainable urban development, as the basis of stability for the development of society and the State. Human needs and interests are considered essential in the Programs developed in Azerbaijan. Therefore, the State strictly adheres to the principles of management and conservation for future generations a rich natural heritage, such as sustainable and holistic human habitat. Thereby the vitality of cities in the country is provided by complexes of social, economic, environmental, urban, architectural and spatial, and communication and domestic conditions defining the quality of human habitat. To compare the system of resettlement of regions with the system of settlement of Azerbaijan as a whole, the author had to collect the relevant information and monitor the town-planning placement of facilities of the residential environment, and determine the distance between settlements and regional centers, and the average population of rural settlements. It was found that the density figures of the settlement of localities by regions are lower than the average for the country.

Keywords:

Urban Framework, Urban Planning, "Modern" Urban Planning, Strategic plan for the development of the territory, Town-planning cluster, Zoning Plan

INTRODUCTION

A comprehensive analysis of the urbanistic flow in the 20th century and demand made to the thesis on "All for Human" identified the objectives of sustainable development of settlements and territories - improving the living condition of the present generation without compromising the needs of future generations, based on the integrated development of urban and rural settlements, public service systems, industrial, transport and engineering infrastructures, vacation and recreation spots, rational use of natural resources, the preservation and restoration of the historical and cultural potential.

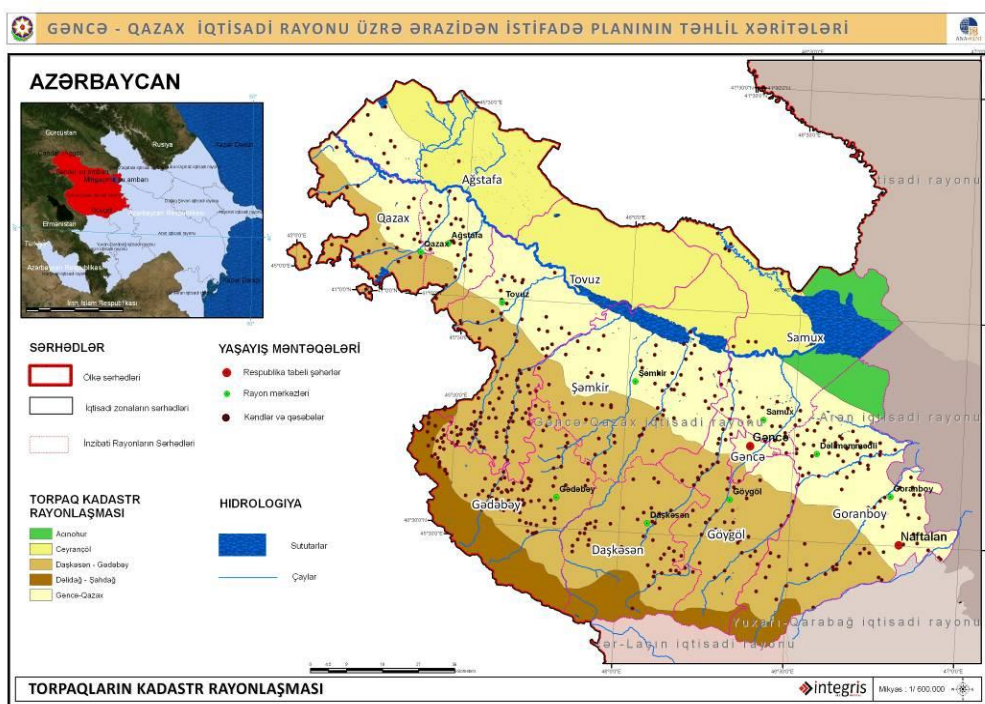
Serious challenges of the 21st century, such as rapid urbanization, climate change, world economic recession and scarcity of natural resources return the world back to the planning system today. These

problems have essential value for the territorial structure and activity of settlements. Despite the fact that hundred years since its inception in most countries urban planning system has not really changed in the last decade, a number of countries move towards the use of new techniques. These include strategic spatial planning: use of spatial planning in order to integrate the functions of the public sector with the inclusion of the territorial dimension; new methods of regulation and organization of land use and planning of new territorial forms such as regional resettlement scheme, compact cities, and new urbanism.

With the enhanced urbanization in the countries, the question of sustainable city development gains crucial importance. Urban planning can play an important role in ensuring sustainable urban development. Achieving the goal in the building of sustainable cities and assistance in maintaining of the climate requires scheduled changes to give the desired shape to cities in terms of territory and space and to ensure the provision of services. Urban planning allows steering the climate problem into major issues of urban development.

The town-planning framework of the residential and work environment is one of the most important elements of an optimal urbanized environment and a decisive factor in its long-term development. Conceptually, a coordinate-modular matrix integrated with residential (city and other settlements), work (industrial and agro-industrial units), natural-recreational and tourist zones should be adopted as a method of forming a unified urbanized structure of the environmental space. In general, the town-building framework of the residential and work environment of Azerbaijan is presented to the author as an integrated system of regional, agglomerative, areal, urban and small settlement elements of the framework.

The development of cities with different population numbers, the profile of the work environment, the state of urban ecology and architectural and planning structures should ensure the proportional and even distribution of residential, industrial areas and zones of Azerbaijan with the condition of updating the existing settlement frame and the formation of a new one in the future, with the necessary town-planning elements and positions of sustainable human habitat.



Land cadastre of the Ganja-Kazakh region

METHODOLOGY

The methodology for determining the ways of the formation and further development of the urban construction framework for the residential and work environment is based on the schemes of the integrated territorial planning of the regions of Azerbaijan and is perceived as the organization of an effective interconnection of complex system, single-structural and multi-functional zones. To assess the town-planning situation of a certain area of the region, it is necessary to:

1. Analyze the existing territory and justify the design solution within the sequence of the design process.
2. Organize the spatial interrelation of the work and residential environment, taking into account the natural features of the territory, accommodation and recreation areas, the identification of urban planning principles, which govern the main objectives of the planning structure.



Ecological rating of the territory of the Aran region

"Modern" urban planning emerged in the second half of the 19th century, mainly in response to the rapid growth and urban pollution in Western Europe as a result of the industrial revolution. In this region of the world adoption of urban planning as one of the functions of the State is explained by the economic recovery of the modern State with its usual strategy of intervention. The "Perspective vision" of the city offered by founders of city planning in Western Europe and the USA at the end of the 19th century set as the purpose to define tasks and forms of planning which, in turn, showed enviable stability and kept it throughout the 20th century.

Planning was considered as a technical problem of development of site plans and planning of settlements, at the same time social, economic and political issues remained out of its sphere.

Planning was associated with the development of master plans, preliminary planning and development projects with the detailed scheme of the built-up city similar to an ideal final form. The zoning scheme of the territory served as a legal mechanism to implement such a vision of the city.

Over the years there were a number of various terms for designation of design plans. The main terms which are used now are provided in Table 1 (UN-Habitat).

Types of urban planning (UN-Habitat).

Type of plan	Description
The master plan	Site plan with indication on a map of locations and borders of urban areas at a particular time in the future after the "implementation" of the plan. Master plans are also called "final form" and "preliminary" plans.
Comprehensive plan	A method whereby urban planning system is prepared for a

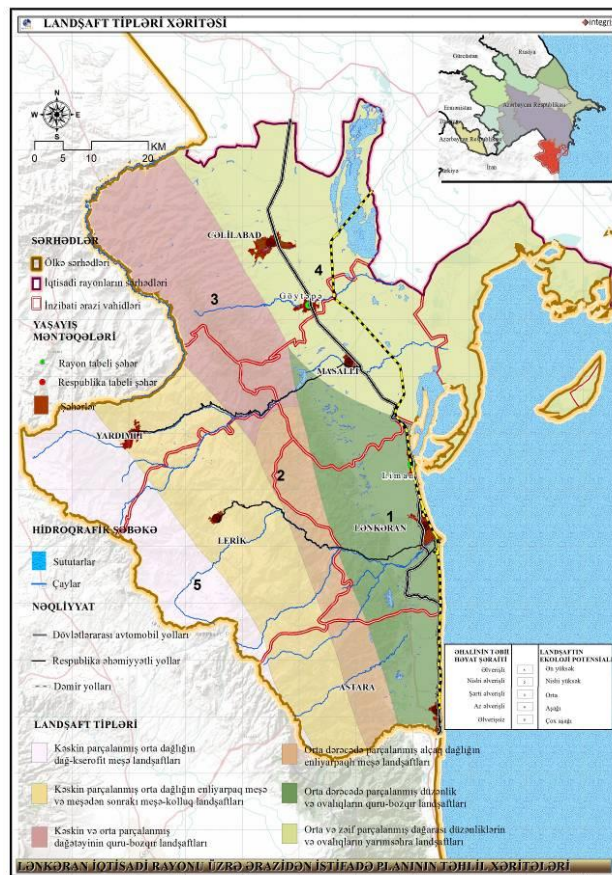
	complete and detailed plan of the city (or urban districts). In the past, this term is also meant to be a complete dismantling of the urban areas and the implementation of the comprehensive new plan.
A comprehensive urban plan	The term, which is used in China to refer to urban master plan (Urban Planning Act 1989).
Overall plan	Another term for the Master Plan with building standards and the application of such rules on specific sections. As a rule is followed by the scheme of distribution of land on zones.
Construction plan or local plan	Specific area plan, often local scale, with details, such as roads, public areas, and borders.
The final plan or design of detailed planning	Plan of a specific area where significant changes are to come, as a rule, within broad strategic or structural plan or "scheme".
Strategic plan for the development of the territory	The terms "structural plan" and "strategic plan" are closely linked, and the latter term is used widely today. The strategic plan is the large-scale, selective plan (or the plan of priorities) development of the territory, as a rule, conceptually defining the desirable direction of the building of the city on the prospect. Development of the strategic plan occurs in circumstances where a decision-making is of special significance.
Directive plan or construction plan	A more general term for structural and strategic plans.
Zoning Plan and the use of the territory	Detailed site plans or maps indicating the purposes of the use of individual land plots and with providing the owner (the State can be the owner as well) specific rights and conditions relating to the use and development of land. Theoretically, a zoning plan coincides with the master plan.
Normative and Legal Regulation of System Planning	Connected with the rights and conditions in Zoning plans and legislative requirements for the procedure for granting or changes of land-use rights, the use of buildings and territory.

The origin and development of master planning happened under the conditions of the strong influence of social values of the developed countries that however did not interfere with distribution in the 19th century forms of urban planning in almost all countries of the world.

Taking into account the weaknesses of master planning, in some countries, it was replaced by new methods and plans, the work on which is carried out with the participation of the public; they differ in larger flexibility, a strategic orientation, and a practicality. However, in many regions, especially in developing countries, master planning and zonal use of urban territories, as before, are used to create the urban environment in the spirit of modernism.

Today urban areas are highly complex, rapidly changing structures, emerging under the influence of a variety of factors both local and global importance, often uncontrollable to the management of planners and with the support of the urban development plan. There is a significant gap between currently common planning systems and the appearance of the cities of the 21st century. In many countries of the world, obsolete forms of planning still remain.

The most obvious problem of the master planning and urban modernism is that they are not able to create necessary conditions for the living arrangements for the majority of the population in rapidly growing, mostly poor cities with informal settlements. It is very doubtful that people living in such conditions, comply with the zoning regulations and use of the territory, designed for small European cities. The decision on the zoning of the territory which is not meeting requirements of the population and use of the land lead to the construction of informal settlements and growth of the cities due to small settlements directly adjacent to the city



Landscaping of the Lankoran region

At the beginning of the 20th century, the world became the witness of unprecedented rates of urbanization. During the period from 1950 to 2007, the cities grew on average by 2,6% a year. For this period the number of world urban population grew four times - from 0,7 to 3,3 billion people, thus, the scale of an urbanization increased from 29% in 1950 to 49% in 2007 (Table 2). Even more noteworthy, perhaps, is the fact that in 2008, the number of the world's population living in cities has exceeded 50%. It is expected that this tendency will remain, and according to calculations, in 2050 70% of world's population will live in the city areas (UN-HABITAT).

Global tendencies of urbanization in 1950-2050 (UN - HABITAT).

Table 2

Region	Urban population (in millions)					Percentage of urban population				
	1950	1975	2007	2025	2050	1950	1975	2007	2025	2050
The whole world	737	1518	3294	4584	6398	29,1	37,3	49,4	57,2	69,6
More developed region	427	702	916	995	1071	52,5	67,0	74,4	79,0	86,0
Less developed region	310	817	2382	3590	5327	18,0	27,0	43,8	53,2	67,0
Africa	32	107	373	658	1233	14,5	25,7	38,7	47,2	61,8
Asia	237	574	1645	2440	3486	16,8	24,0	40,8	51,1	66,2
Europe	281	444	528	545	557	51,2	65,7	72,2	76,2	83,8
Latin America and Caribbean	69	198	448	575	683	41,4	61,1	78,3	83,5	88,7
North America	110	180	275	365	402	63,9	73,8	81,3	85,7	90,2
Oceania	8	13	24	27	31	62	71,5	70,5	71,9	76,4



Urban town-planning framework of Ganja city



The transport core of the town-planning framework of the Lenkoran region

Growth rates of world urban population decreased to 1,8% a year. In the developed countries scale of urbanization reached 50% more than a half of the century ago, however, in developing countries, such scales will be reached not earlier than 2019.

In the developed countries of the world, urbanization has reached the highest level. In the cities, there is approximately 74% of the population (Table 2). There are low rates of urban growth, average pace during the period from 1975 to 2007 amounted to 0.8%, and it is expected that between 2025 and 2050 years it will drop to 0.3%. In developed countries, the increase in urban population roughly by one-third was due to migration. Another demographic aspect is the rapid aging of the population, as evidenced by the growing percentage of residents aged 60 years and above.

In countries with economies in transition, the main demographic tendency is negative population increase in some cities. It is noted that in the period from 1990 to 2005, the population declined in 75% of the cities in Eastern Europe. The reason for this was the growth of migration in the countries of the European Union, negative economic trends, increased mortality and reduced fertility. Urban population reduction was facilitated by the breakup of the Soviet Union, which had an impact on many aspects of city life.

Developing countries are home to about 44% of the population (Table 2). It is expected that in 2050 this figure will rise to 67%. In the period from 1975 to 2007, the average annual population growth rate was 3.1 percent. It is estimated that in the period from 2007 to 2025 this figure will drop to 2.3% and in the period from 2025 to 2050 - to 1.6%. In the countries of the developing regions, particularly Africa and Asia have the highest rates of urbanization. This fact can be attributed to the high rate of natality and increase in rural-urban migration. An important demographic tendency in developing countries is the high percentage of the youth (15-29 years). In 2030 60% of people in developing countries living in cities, will be under the age of 18 years (UN-Habitat).



Industrial environment of Sheki-Zakatala region

Thus, analyzing the above mentioned global problems of urbanization in the light of the sustainable development of localities and territories of the States at the present stage the main directions have emerged. These are:

- creation of the habitat safe for human life and health, contributing to his/her physical and spiritual development, adequate progressive trends in socio-economic, cultural and spatial improvement of the State in the management of territorial resources by means of urban planning;
- enhancement of housing provision by residential construction with high environmental and aesthetic quality and living comfort, the provision of housing to socially vulnerable population groups;
- ensuring the cohesive development of cities and adjacent territories through complex and efficient problem solving of perfecting of industrial, social, transport and technical infrastructures, optimization of the environment, the organization of leisure time of the population;
- integrated development of transport and engineering infrastructure, the creation of a system of interconnected cross-border communication corridors;
- improvement of living conditions in rural areas, improving transport linkages of rural settlements with the urban centers and among themselves;
- conservation and management of architectural monuments, history, and culture as a national heritage, the rehabilitation of historical buildings with the creation of modern-level comfort;
- enhancement of the supply with green territories, bringing natural systems to a level ensuring the execution of recreational and environment regulating functions on the urbanized territories, the development of water and green urban systems, improvement of the recreational landscapes diversity that meets the needs of the population;

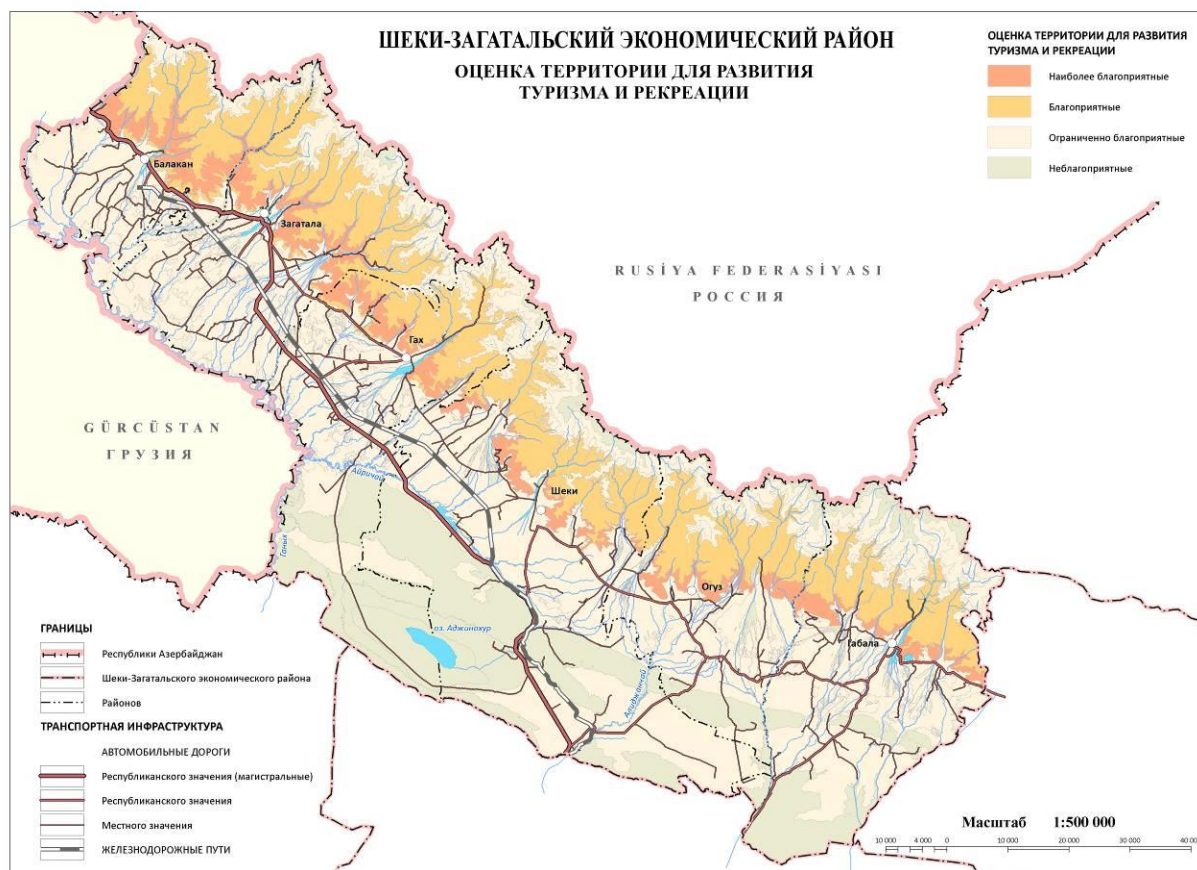
- improvement of living conditions in rural areas, improving transport linkages of rural settlements with the urban centers and among themselves

In the process of the development of society, expansion of borders, targeted streamlining of the habitat space, independent field of urban studies (town planning) - territorial and space planning has been formed, in which identical methodical bases, methods, and ways as in town planning are used, but larger spatial formations such as district, region, state are considered.

The main kinds of this design type are:

- at the State level - scheme of integrated territorial organization of the country - National plan;
- at the Regional level - scheme of complex organization of regions, areas, groups of administrative districts - Regional plan;
- at the local level - the integrated scheme of the territorial organization of administrative districts:

1. Regional plan: site planning of residential suburbs of the cities, master plans of the cities and settlements.
2. The master plan: urban projects of various sizes (large, medium, small).
3. Detailed plan: projects of detailed planning of individual parts of the city, small towns, rural settlements, residential, industrial, recreational and other functional areas



The tourist core of the town-planning framework of the Sheki-Zagatala region

It should be noted that the National plan is formed on the basis of state policy in the field of resettlement and the organization of territories at the level of the country in coordination with the common political, social and economic goals of the state. The regional plan is formed on the basis of the perspective of the territorial development of the region for the improvement of production, management, and protection of natural and historical and cultural values, maintaining of ecological equilibrium of the environment.

Study on the urban design practices showed that the fundamental elements of this process are:

- Town-planning framework - the steadiest territorial components of planning structure - the

residential, production, and also historically valuable territories including steady elements of a street road network and the main transport communications of the city, the city and regional centers of the functional activity. Owing to physical and functional stability the Town-planning framework - is capable of being broadcast practically without changes in the Future, providing town-planning continuity of the subsequent development.

- Town-planning cluster - the territorial formation within the megalopolis representing rather independent unit and providing to the inhabitants the complete set of city functions (inhabited, administrative and business, trade and entertaining, recreational).
- Urban fabric as opposed to the concept of "urban planning framework", the term "urban fabric" refers to a homogeneous and deprived of the central functions territories such as residential, industrial, recreational, etc.
- The ecological core of the town-planning framework is a system of open green spaces, natural complexes, formed on the basis of the hydrographic network, taking into account the geomorphology, relief, and interrelation with the natural environment.
- Residential environment (living) is a system of architectural and environmental elements (buildings, equipment, engineering infrastructures, adjacent territories, etc.) providing accommodation.
- Operational environment (industrial, agrarian, storehouse and public utilities) is a complex of buildings and structures, networks and systems which are not directly related to the production of material goods, but necessary both for the production process (industrial infrastructure), and everyday life (social infrastructure).
- The Urban Ecological Zones (UEZ) - the territorial and planning elements of the city consisting of objects of the center of the industrial region or hub, plant facilities area and sanitary protection zones between industrial and residential entities.
- Urban Ecological Corridors (UEC) - territorial and planning elements of a particular part of the city between two industrial hubs, functionally and compositionally joining the urban ecological zones (UEZ), being the self-contained zone, "working" either on the residential entities adjoining from the opposite side of UEZ.
- A city town-planning framework is the "skeleton" including the centers of different levels, the streets, and roads connecting the centers and the adjoining sites, attracting considerable daytime population. Urban frame usually deals the most significantly with radial and circular directions. The number of those and others is an indicator of a certain size of a city. Usually, planners assume that the density of the development should follow the price of land (i.e. their high rates are drawn towards the framework, especially to the central core of the city).

Considering and analyzing functions of the town-planning framework of the particular territorial and town-planning environment (industry-residence) it is necessary to reveal the character and tendencies of interrelations of particular cores, since the philosophy of any of them consists of an attraction to the main skeleton of a framework of these or those cores which are characterized by:

- Geometry - territory in radius (km) or square (km²) around, or on the sides of the frame;
- Direction (centripetal) to the main city-kernel (centrifugal) dispersed, within the boundaries of the region;
- Density of residential entities, industrial territories, and other town-planning clusters;
- Current status- developing, stagnated, depressive.

Town-planning frame for various cities differs by:

- geographical position;
- economic condition;
- placement in the system of settling
- environmental *data*;
- relief of the territory;

- geometry;
- dimensions of the urban territory;
- balance and placement of residential and industrial zone (size and configuration) in the architectural and planning structure of the city.

Evolution of development of a town-planning framework happens in the course of time in connection with the change of a town-planning situation (formation of a new or correction of the existing city plan), reconstruction of architectural and planning structure, urban ecological actions and therefore the framework changes geometrically, compositionally, the sizes of the environmental territory.

Resettlement, being a historical and geographical category with functions of use of natural and economic and geographical bases, with the realization of particular economic functions with transport economic relations - exists a network of settlements in the territory of town-planning space.

Analysis of the history and formation of residential environment shows that the resettlement system hosted in a particular area is the socio-economic unification of localities, the relationship of which occurs through shared utilization of production, economic, social, living, transport, and other aspects. In the process of given formation settlements and their economic potential are under the influence of urban, natural, socio-economic and demographic indicators.

Urban planning combines the studies of direct relevance to a multilateral spectrum of formation of the material human habitat (cities and other settlements) within and sometimes beyond the boundaries of which, the most multifactor and various vital processes and actions (architectural and compositional, engineering and technical, social and cultural, natural and biological, etc.) occur in different kind of systems of resettlement. In this regard, urban-planning science in the aspect of interaction of the material environment and vital processes is becoming more and more multifaceted, connecting in one knot complexes of sciences and scientific directions, territorially and spatially created in the form of a framework.

On our example of study and analysis of a town-planning framework of the residential and industrial environment (basic elements of human habitat), various conceptual approaches to the subject of "framework" in town planning were considered and analyzed.

The original statement of the problem and its development on specific issues was reflected in detailed works of town-planning of Central Scientific Research and Planning Institute. Concerning the planning structure of the city, the idea of the framework was formed within the research on the problem "Transformation of the environment of the large cities and perfecting of their planning structure" launched in 1971 and completed with the edition of the monograph of the same name in 1979 under V. A. Lavrov's guidance.

The author wrote the Chapter "Transport-technical and planning-structural frame of large cities and the interrelated groups of localities". Here was shown justification of the need to operate with such concept as a planning framework of the city taking into account the growth of the related contents of planning structure. If earlier the first research tasks were constraints and differentiation of heterogeneous parts of the city, now the task of ensuring its integrity arose.

A. E. Gutnov (Central Scientific Research and Planning Institute, Master Plan of Moscow) in his doctoral dissertation "Structurally functional organization and development of the town-planning systems" (1979) proved the ideas of a structural and functional framework of the town-planning system on the example of Moscow.

General scheme of resettlement in the USSR was developed in Central Scientific Research and Planning Institute of urban planning (G. N. Fomin, V. N. Belousov, V. V. Vladimirov, F. M. Listengurt, G. C. Yusin and others), which used the concept of frame of resettlement, as well as the transport frame, nationwide. In joint work by Y. P. Bocharov and O. K. Kudryavchev (Bocharov and Kudrjavcev, 1972) was noted that "... groups of big cities not only characterize the present stage of urbanization but also form a framework of the perspective organization of production and development of resettlement".

Prerequisites of studying of such composite phenomenon as a framework of planning structure of the largest cities in systems of resettlement is capital research of the large cities agglomerations and the related systems of resettlement which are carried out by I. M. Smolyar (1972) and others and in certain areas: Ural-V. Sh. Lahtin, Siberia-B. I. Oghli, Ukraine-I. A. Fomin et al., as well as a systematic approach to urban development, defined in the works by L. N. Avdotin, etc.

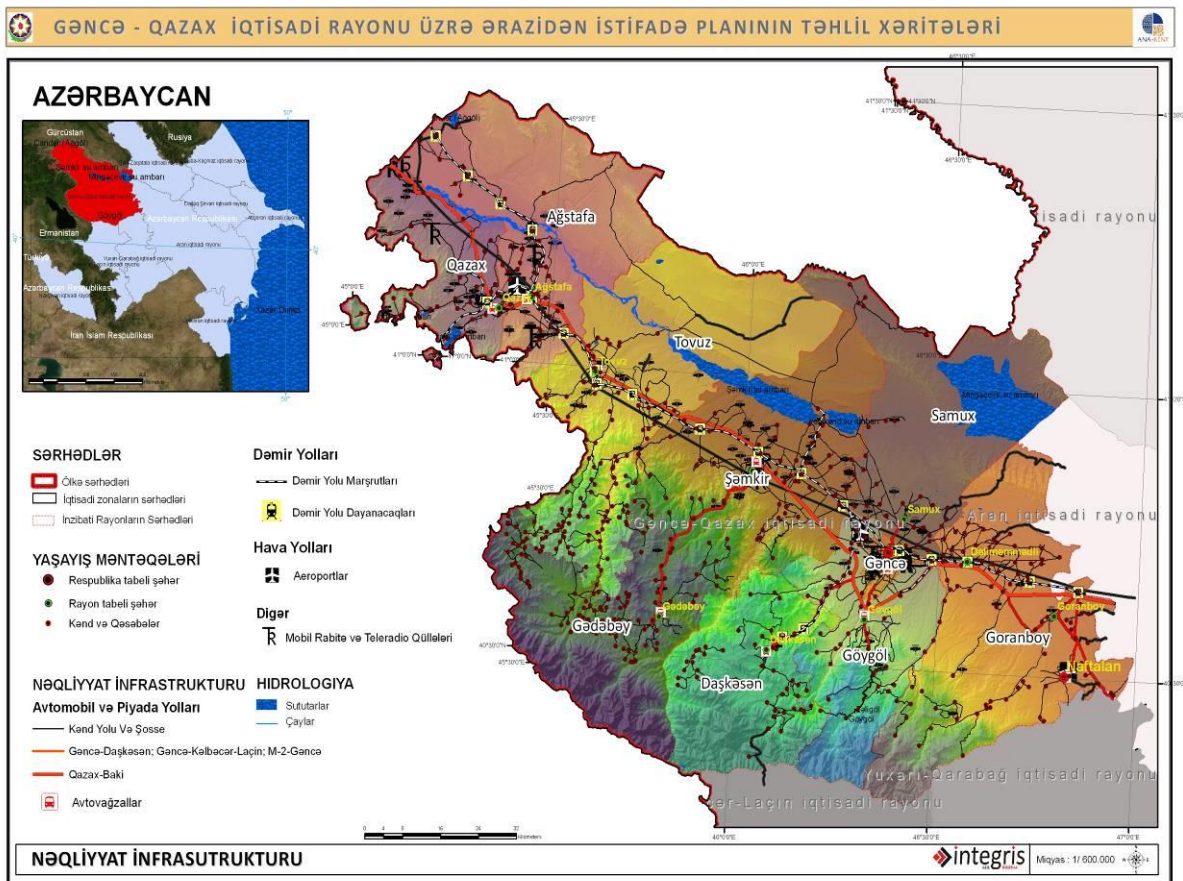
In geography, the idea of a framework can be traced back to the phrase by N. N. Baransky "The cities plus

transport network are an economic framework of the territory". G. M. Lappo considers a basic framework in relation to the territorial structure of the economy, scheduling, and resettlement, showing his outstanding role and value in specific conditions. B. S. Horev considers a basic framework the most important constituent of his theory of unified systems of resettlement, attaching special significance to communication with the territorial organization of society. P. Y. Baklanov applies a concept of a basic framework of territorial economic structures to linear and nodal structures of the industry.

In the western countries, the concept of a framework of planning structure of the largest cities in systems of resettlement has own features. In the works of Y. Gruz (CSSR), related to 1960, the peculiar structure of cities with underlined frame is represented in a schematic form. Such developments have taken place in England, France, and other countries. Even more schematic attempt up to a global scale had been taken by K. Doksiadis (Greece). According to V. P. Glazychev (Russia) in Japan, the term "spatial framework of urban environment" is used in architectural and compositional sense associated with the traditions of Japanese architecture.

The modern stage of development of the urbanization processes in Azerbaijan is characterized by the following key indicators of the structure of the current settlement. The inhabitants of the Republic live in 69 cities, 129 urban-type and more than 4200 rural settlements. The network of the cities on the accepted town-planning classification consists of one of the largest (the capital of the republic, Baku), numbering about 3 million people, 2 large, with a population of over 250 thousand, 3 medium (50 thousand) and 63 small towns.

The space urbanization which developed in the country led to eccentric placement of 2 poles of areal concentration of capacity of the full-fledged residential and work environment in its territory - Baku-Sumgait and Ganja-Mingachevir directions.



transport core of the town-planning framework of the Ganja-Kazakh region

Other concentration areas of urbanization territory potential are dispersive in nature and are dispersed in several regional areas.

Thus, concentration areas of urbanization potential on Azerbaijan's territory cover about 5% of its space. The eccentricity of their position regarding the rest of the territory complicates the task of ensuring efficient

maintenance of habitats by regional centers and formation of normal space-time parameters of their accessibility to the public. This creates a problem for the development of the system of transport communications and makes the task of redressing the imbalances in micro-regional development of urbanization due to inducing growth of capacity of the basic centers for other systems of resettlement.

The largest and developed among the basic centers of resettlement is Baku agglomeration which embodies in itself the main socio-economic and demographic potential of the Republic (about 35% of the population and over 70% of city formation). This also led to the most vivid manifestation of all contradictions and negative consequences of the unmanaged evolution of agglomerations, as a composite structural element in the system of resettlement and urban planning object. Among the most pressing is the solid construction of large land area or, for example, the total conversion of resettlement, environmental management and territorial organization of productive forces (hereinafter Regional resettlement scheme).

In general, the town-planning framework of the residential and work environment of Azerbaijan is represented to the author as the integrated structure of regional, agglomerative, areal, city and small settlement (villages) frameworks.

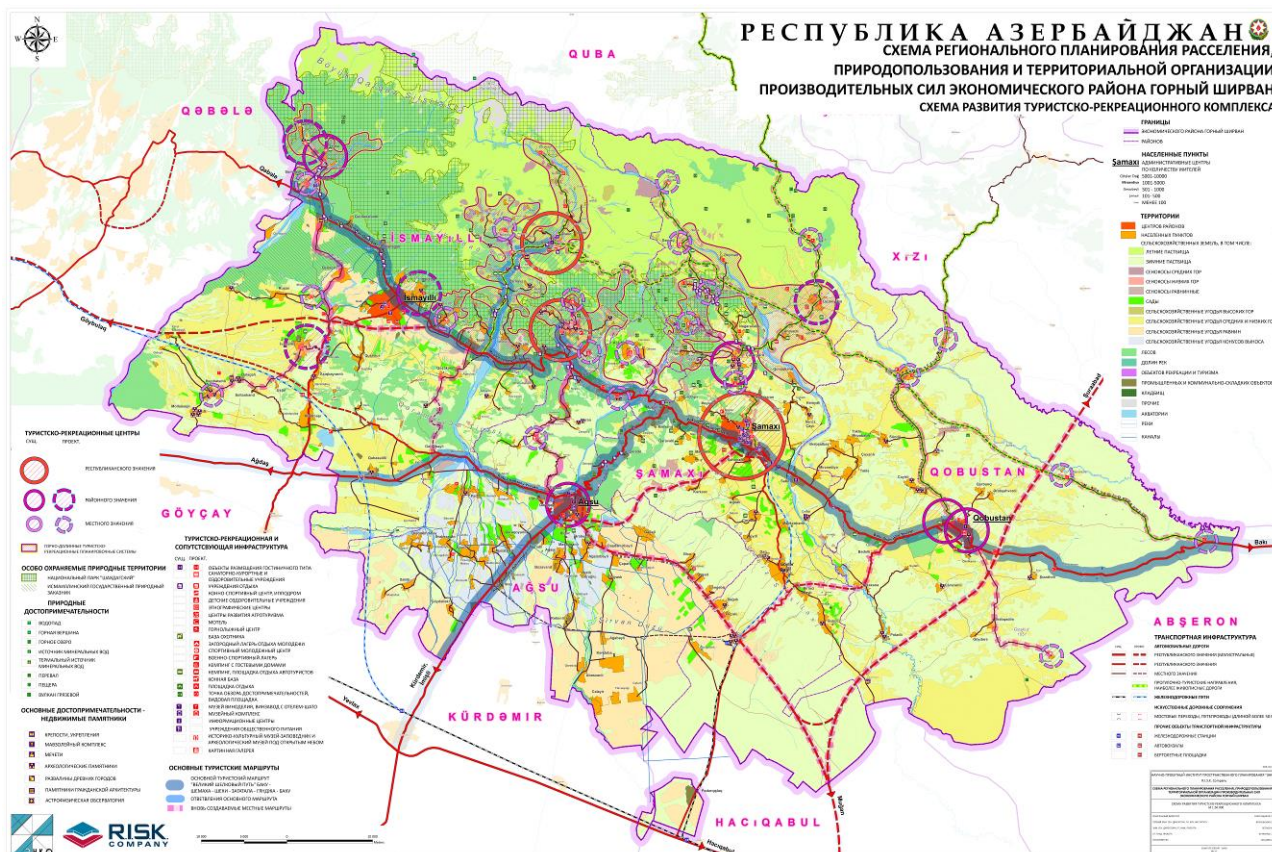
Different rates of development of a town-planning framework depend on the fluctuation of the functioning of a framework in various town-planning conditions and situations, both in the city and in the urbanistic environment (regions, areas, agglomerations, nodes of clusters of small localities etc.).

To meet the challenges on this issue it is necessary to apply new strategic planning consisting of identification of factors of the internal and external environment, the organization and their division into 4 categories - SWOT analysis, S - strengths (existence of the scheme of territorial planning etc.), W – weaknesses (outdated engineering infrastructure, etc.), O – opportunities (preparation of town-planning documentation etc.), T – threats (the increased seismic risk, etc.)

Development of the cities with various populations, the profile of the production environment, existing ecological state of the city and architectural and planning structures should ensure:

- Proportional and equal distribution of residential and work environment with a condition of updating of a framework of resettlement.
- Removal of the urban tension of the Apsheron agglomeration and Baku.
- Formation of a new town-planning framework of residential and work environment of regions in Azerbaijan.

The town-planning framework of the residential and work environment is one of major and priority results of temporary and space process of urbanized environment formation and a decisive factor of its perspective development.



Tourist core of the town-planning frame of the Shirvan region

CONCLUSION

Thus, the conceptual proposals discussed in the article on the formation of the town-planning framework of Azerbaijan's residential and work environment for each region are different. The author came to the conclusion that the territorial- spatial conditions for the town-planning framework are based mainly on the characterization of the economic and geographical status (EGS) of the region, on a new method of strategic planning that identifies factors of the internal and external environment (SWOT analysis), on the cluster approach when considering the functioning of the territorial components of the architectural and planning structure of the residential and work environment.

It turned out that the surveyed and studied by the author the territorial production data for the regions are diverse and differ in:

- The density of settlement and the values of elements, types of residential environment (cities, towns, etc.).
- The amount, area, and geometry of urban and rural settlements.
- The rate of population growth in regions.
- Economic and geographic status of the considered territories of the regions
- Ecological and natural data.
- The degree of urbanization of regions.
- State of transport and engineering infrastructure of regions.
- Degree and characteristics of urban development clusters of regions.

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