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Formation of Sustainable Development of the City of Aghdam – Regional Center of the Revived Karabakh Zone of Azerbaijan

Ilgar Isbatov

Faulty of Architecture, Azerbaijan University of Architecture and Construction, Baku,
Azerbaijan, 11, Ayna Sultanova Str.
E-mail: isbatov64@mail.ru

Reviewers:

A. Azizov, Doctor of Philosophy in Architecture, Faculty of Architecture, Azerbaijan University of
Architecture and Construction
E-mail: agasalimmusa@gmail.com

K. Sultanov, Honored Architect of the Azerbaijan Republic, Doctor of Philosophy in Architecture, Faculty of
Architecture, Azerbaijan University of Architecture and Construction
E-mail: architect.Kamran.S.D@mail.ru

Abstract. The results of a study on the urban environment of Karabakh in the post-war period are presented. The purpose of the study is to develop promising methods for the development of Karabakh, considering all the characteristics of the city. Objective prerequisites for the formation of new models of residential buildings and multifunctional complexes have been identified. The article analyzes the development of the city's planning structure, its status, and specific features. Project proposals from various years and the current concept of city development is examined. Based on the approved modern concept for the development of Karabakh, the proposed models can effectively address the issue of housing development for the region's residents.

Keywords: Aghdam; city; cultural; infrastructure; residential zone; recreational zones; sustainable development.

Introduction

The Republic of Azerbaijan, along with the global community, is undergoing a transition to a new civilized strategy known as sustainable development of human settlements. This strategy effectively addresses the objectives of achieving a balanced resolution of socio-economic challenges and addressing ecological balance and the potential of natural resources to meet the needs of present and future generations. This global approach highlights the significance of planning sustainable urban development within the unique context of the Republic of Azerbaijan, thereby giving this issue not only theoretical importance but also crucial ideological and political implications [1].

The concept of sustainable development, initially introduced at the UN International Conference on Environment and Development in Rio de Janeiro, Brazil, in 1992, has evolved into a global ideology that guides and shapes the development of numerous countries worldwide over the past two decades. The concept's

popularity stems from the evident signs of an impending global catastrophe caused by unsustainable utilization of natural resources, including climate change, desertification, epidemics, and mutations affecting all forms of life on the planet [2].

During the 1992 forum, representatives from 179 nations adopted a strategic plan of action known as Agenda 21. This document outlines the primary objectives that, when achieved, will set us on the path towards sustainable development [3]. The goal indicated in the plan is to transform human habitats into integrated socio-economic and spatial-ecological systems known as ecopolises [4]. From a modern perspective, an ecopolis is a city in a state of well-being, characterized by clean air and water, abundant green spaces, aesthetically pleasing architecture and streets, ample employment opportunities, freedom in choosing a place of residence, and a city that is inclusive and supportive of all age groups, particularly children and the elderly. Ultimately, an ecopolis prioritizes the well-being of its residents rather than the dominance of automobiles.

The issue of sustainable development in the cities of the Karabakh zone has become of utmost importance in the Republic of Azerbaijan at the present stage.

At the end of the twentieth century, a severe military conflict erupted in the Karabakh region of Azerbaijan, leading to the occupation of the territory for over 30 years. As a result of this conflict, all residential and public buildings were destroyed, and the entire engineering infrastructure was devastated. The flora and fauna suffered extensive damage, including the destruction of unique centuries-old woodlands. Currently, the return of the population to their native places is not feasible [6].

The territory, ecology, and population of Azerbaijan have endured significant economic and moral damage due to the Karabakh conflict. Ten administrative regions of Azerbaijan, namely Khojavand, Khojaly, Shusha, Lachyn, Kalbajar, Aghdam (most of it), Jabrail, Fuzuli (partially), Gubadly, and Zangelan, have been decimated [21].

By the decision of the Azerbaijani Government, investments were allocated from the State Oil Fund to

enhance the living conditions of refugees and internally displaced persons. The funds were used for the construction of new settlements, including two villages with 150 families each and two villages with 100 families each in the Aghdam region, as well as four villages with 200 families each in the Fuzuly district. The development of comprehensive plans for these villages considered current construction norms and regulations. Each new village includes a complex of social, cultural, household, and engineering buildings and structures. Additionally, each house is accompanied by adjacent plots of 1200 m² and 2 hectares of farmland outside the village [7]. In December 2007, the final tent city was dismantled, resulting in the closure of a total of 12 such cities. As part of the program, 54 new villages were established, and over 15 thousand houses were constructed to improve the living conditions of immigrants.

Simultaneously, the leadership of the Republic of Azerbaijan made efforts to peacefully negotiate the release of illegally occupied territories. Unfortunately, this situation persisted for approximately 30 years. Eventually, due to 44 days of hostilities in 2020, Azerbaijan was compelled to resolve the issue militarily and successfully regained control of its lands.

Main Part

The study relies on a combination of theoretical research methods, including analysis, synthesis, comparison, and analogy, as well as empirical methods such as external examination and prediction [8]. The research incorporates the method of studying foreign and domestic experiences in city development and reconstruction during the post-war period. In proposing models for residential development and the organization of public facilities in the Karabakh region, all the unique features of the city were considered.

The study's source base consists of previously unexplored archival data held in the State Archive of the Republic of Azerbaijan. Additionally, to assess the extent of damage to residential areas in the city, it is necessary to utilize primarily the analytical method for conducting the required calculations and providing theoretical

justifications. Drawing insights from the experiences of European states is considered essential in this regard [9].

Defining its objectives in the implementation of Habitat Agenda II, the Government of Azerbaijan strives to maximize the involvement of various stakeholders, including representatives of private entrepreneurship, public non-governmental organizations, and other civil society actors [10]. In the context of the new economic formation, this commitment is exemplified through the adoption of new legislative, legal, and regulatory measures pertaining to urban planning. These measures aim to streamline and democratize the process of urban planning and housing ownership, while also reinforcing the protection of cultural heritage and the environment [2].

Since gaining independence in 1991 and embarking on a path of sovereign development, the Republic of Azerbaijan has witnessed dynamic urban growth [5]. This growth has involved the reconstruction of historical cities as well as the construction of new ones. As cities undergo dynamic development, there is a shift in approaches to urban planning techniques to effectively plan and develop them. Recognizing the significance of incorporating sustainable urban development principles, there is an increasing need to develop new scientific methods of planning and design that account for the past, present, and future of cities [11].

Today, the concept of sustainable development holds a dominant and universally recognized position worldwide [12]. It extends across various domains of activity, including the crucial field of urban planning. The issue of sustainable urban development has been given priority at International Congresses of Architects held in Beijing (1999), Istanbul (2002), Berlin (2005), Turin (2008), Tokyo, and beyond [13]. It is widely acknowledged that the sustainable development of cities should strive to ensure a high quality of life, while also considering the preservation of natural environments, resources, safety, and the environmental balance of economic and social activities [14].

In the context of planning cities within the Republic of Azerbaijan, the concept of "sustainable development" represents a consistent transition towards a new genera-

tion of cities that align with modern urban planning principles in terms of their functions, structure, architecture, location within the settlement system, and integration with the surrounding environment. The content of this concept, as well as the planning decisions stemming from it, continually evolve in response to the evolving social, economic, and environmental conditions of society.

Drawing on the proposed theoretical concept of urban planning activities within the context of the Republic of Azerbaijan, this study explores methodological provisions for predicting the development of a qualitatively new target object in urban planning - sustainable cities. The planning of their development plays a crucial managerial role, ensuring the coordination and constructive implementation of urban planning efforts [15].

The realization of planning sustainable development in Azerbaijan's cities can yield multiple effects:

- Social: Enhancing the quality of life for the population through the planning, development, and functioning of sustainable cities.
- Ecological: Facilitating the balanced development of natural and urban environments, while improving their aesthetic qualities.
- Economic: Advancing the economy of regions and urban construction, wherein the significance of modern urban planning plays a pivotal role.

By considering these aspects, the comprehensive approach to planning sustainable cities can bring about positive impacts on social well-being, environmental preservation, and regional economic development [16].

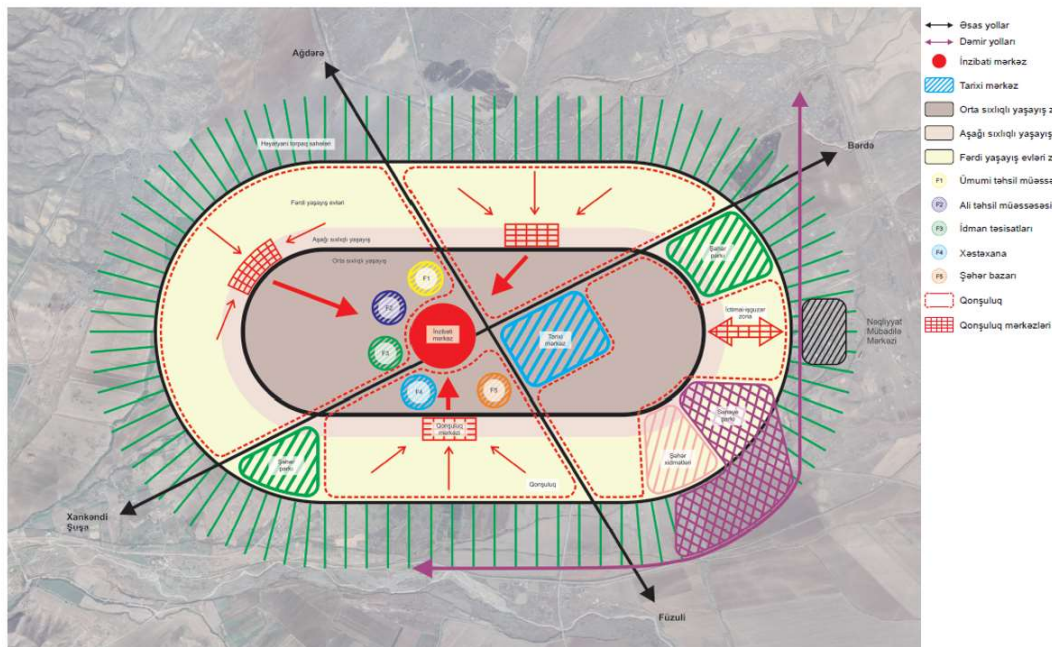
By implementing new planning approaches and aiming to achieve the desired effects of sustainable development (social, environmental, economic), it becomes possible to continuously enhance the unified settlement system of the Republic of Azerbaijan, which serves as the primary environment for societal life. The structuring of the planning system in urban planning within Azerbaijan emphasizes the primary and subsidiary goals and means of planning in improving the spatial conditions for social development [17].

Among the significant challenges in planning sustainable development of cities in the Republic of Azerbaijan are the issues related to aggression in front-line areas and the planning of border cities.

To accomplish the objective of creating a modern, sustainable city in the 21st century on the grounds of the

destroyed city of Aghdam, specific goals were established. A conceptual scheme for the development of Aghdam (Scheme 2,3) was formulated, and proposals for residential development and the construction of the Mugham Music Center were put forward.

	GOAL 1: ESTABLISHING A REGIONAL CENTER REGIONAL AND ADMINISTRATIVE SERVICES, TRANSPORT HUB, CREATION OF SECTORAL DIVERSITY
	GOAL 2: CREATION OF A SMART CITY SMART MANAGEMENT, SMART ECONOMY, SMART ENVIRONMENT CREATING THE ENVIRONMENT, SMART LIVING, SMART MOBILITY AND SMART HUMAN RESOURCES
	GOAL 3: CREATION OF A COMPETITIVE CITY INSTITUTION OF HIGHER EDUCATION, SPECIALIZATION IN AREAS, STRONG ECONOMIC CONNECTION POINTS, REGIONAL, COUNTRY AND CREATING INTERNATIONAL CONNECTIONS, HIGH-QUALITY URBAN ENVIRONMENT AND HIGH-QUALITY SOCIAL SERVICES
	GOAL 4: CREATION OF A SUSTAINABLE CITY CREATION OF CITY STRUCTURE OF NEIGHBORHOODS, INFRASTRUCTURE CAPACITIES, DEFENSE PROVISIONS, LOCAL, NATURAL AND HUMAN RESOURCES ACCESS AND REGULATED BUILDING OPPORTUNITIES



Scheme 2. Conceptual diagram



Scheme 3. Main technical and economic indicators for the area





Aghdam Culture Center

structure. A comprehensive assessment of the current territory of Aghdam has led to the development of a conceptual scheme for the city's future development. This scheme proposes the establishment of Blue zones, a medium-density residential zone, a low-density residential zone, an industrial development zone, an industrial zone, non-residential development areas, a transport infrastructure center, transport corridors, rivers and their surrounding recreational areas, as well as green spaces.

The master plan for Aghdam, which was developed based on a comprehensive assessment of the territory, is presented in Figure 1.



city's residential areas and the determination of their planned development parameters [19]. These parameters are defined by the overall settlement plan, which considers the urban planning and natural characteristics of the territory, the interconnected placement of residential buildings, public structures, street and road networks, communal landscaped areas, and other facili-

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ties. The spatial solution of development aims to create a modern living environment in the Republic of Azerbaijan that meets the requirements of the 21st century.

The research work has resulted in the development of an urban planning methodology centered around assessing the degree of destruction in residential areas affected by hostilities. Utilizing this proposed methodology will save time in evaluating the damage inflicted

on capital construction facilities, serving as the foundation for initiating the urban restoration process and providing a fundamental basis for all other levels of territorial and urban planning [20]. The significance of this approach lies in its ability to determine the extent of destruction in residential areas under unique circumstances such as armed conflicts in urban settings, where field assessments are inherently complex.

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ილგარ ისბატოვი არქიტექტურის საფუძვლების დეპარტამენტი, აზერბაიჯანის არქიტექტურისა და მშენებლობის უნივერსიტეტი, აზერბაიჯანი, ბაქო, აინა სულთანოვას ქ. 11
E-mail: isbatov64@mail.ru

რეცენზენტები:

ა. აზიზოვი, ფილოსოფიის დოქტორი არქიტექტურაში, არქიტექტურის ფაკულტეტი, აზერბაიჯანის არქიტექტურისა და მშენებლობის უნივერსიტეტი
E-mail: agasalimmusa@gmail.com

კ. სულთანოვი, აზერბაიჯანის რესპუბლიკის დამსახურებული არქიტექტორი, ფილოსოფიის დოქტორი არქიტექტურაში, არქიტექტურის ფაკულტეტი, აზერბაიჯანის არქიტექტურისა და მშენებლობის უნივერსიტეტი
E-mail: architect.Kamran.S.D@mail.ru

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