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General Designing Principles and Urban Recovery Framework in the Karabakh Region

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Abstract
The process of formation of the urban architectural environment is presented by the author as a continuous phenomenon that directly influences the general appearance of the city. The interdisciplinary of this scientific direction is also well established. The main part of the article is devoted to the problem of creating a unified urban architectural ensemble, taking into account the economic, social, environmental and spatial aspects of design. The article analyzes the development of the planning structure of the city, the formation of its status and specific features. The design proposals of various cities and the modern concept of city development are considered. The problems of the state of the urban environment and promising directions in the development of liberated areas are being identified. The purpose of the study is to develop promising development methods considering all the characteristics of the city. For the first time, objective prerequisites for the formation of new planning models for the multifunctional environment of liberated cities were revealed. Based on the approved modern concept of the development of cities of Karabakh, the proposed models will help solve the issue of the development of housing stock of cities, both for residents and tourists, contribute to the additional influx of investments, as well as serve as a basis for the development of similar development models for other regions of Azerbaijan.

1. Introduction

The city as a spatial unit of society is an object of study in many sciences: geography, demography, history, sociology, etc. Traditionally, the city is understood as one of the most important forms of human existence, complex in structure, multidimensional and specific phenomenon of human civilization, shaping the worldview of the population and affecting the daily lives of people. Historians engaged in the study of everyday life operate not only with the concept of the city, but also with the term urban environment, as a set of living conditions of the population, inhabited urban space (Мордвинцева).
Throughout history, the reasons for the emergence of cities and the process of their formation have followed the laws of the society in which they exist. A city, in a broad sense, is a cluster of localities that can fully sustain the existence and sustenance of people and society on its own. The task of urban science and practice is to regulate human activities such as living, working, studying, recreation, and generally maintaining a healthy lifestyle. That is, the process of regulating the legitimate formation of environments in which cities have distinct or different functions is a 'product' of urban science and practice. Nowadays, the spatial capacity of cities is divided into big, large, and small categories. Also, the status of city - destination areas expand and sometimes changes. For many years now, the capital and provincial cities have been undergoing a period of accelerated

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transformation into new forms such as tourist, ecological, smart, and so on. Obviously, a long time should pass for the emergence and formation of cities. More comprehensive analysis and identification of the existence of ancient history and culture in the territory of our country can be made through urban planning traditions. Azerbaijan's cities, rich in climate and relief structure, have their own urban planning traditions. Indeed, it is these traditions that distinguish the wide range of territorial features of our country, where different urban planning processes take place. The survived cities created a complex network of spaces with circular, semicircular, linear, terraced structures.

2. Material and Methods

International practice often focuses on approximate estimation methods with a possible error in order to determine total damage and move to find recovery strategies and mechanisms at other levels (economic and social) especially when determining the degree of destruction in special circumstances - warfare. Generalizing the experience of the European States, it seems necessary to use primarily the analytical method to make the necessary calculations and theoretical justification for determining the degree of destruction of the city's residential areas. The study uses a range of methods. The principles of social history make it possible to identify the proportion of local government participation in urban space. The historical-comparative method allows defining peculiarities of project work and the administrative-organizational process of managing the architectural industry.

Throughout history, cities have been destroyed over time, sometimes anthropologically, sometimes anthropologically, and even completely obliterated. The one interesting factor is that even in the 21st century, they are not immune to urbanistic collapse. Nowadays, we witness earthquakes, landslides, tsunamis, floods, and destruction caused by the destruction of cities. They are the "fates" of a city that has been destroyed by anthropogenic factors. However, there are various ways of restoring these ruins that cannot be denied.

But have any laws been developed for cities that have been destroyed by human-anthropogenic factors? The issue itself requires special non-standard reconstruction and rehabilitation projects for each ruined city. Certainly, large-scale processes through reconstruction and rehabilitation projects have been applied in cases of different cities.

The extent to which we will invoke international practice for our liberated cities is questionable at present. If the example of World War II is considered, you will find that European cities were destroyed for no more than 5 years. In these historical conditions, we will be able to perceive the cities of Japan, which have been destroyed in a very short time, as a similar fact. However, the effects of the war that took place during the First Karabakh War in the 1990s, later led to the regular destruction of our cities for almost 30 years. Over the years, addressing the urbanization problems that span our region will require a unique urban approach to the principles of extensive and long-term rehabilitation and reconstruction. By and large, we need to proceed with the next immediate actions:

1) New prior to the occupation, analyses and reports on the territory and population of these regions should be carried out.

2) Statistics of the prospective population need to be taken into consideration in the

process of "The Great Return".
3) Urban destinations of cities prior to occupation - foundations, sub-centers, etc. need to be re-analyzed.
This is because the planning of each region, district, and city initially refers to the population at the beginning of its project process. These statistical data are important for creating a unified economic base in rural and urban areas within the region, efficient use of land, and equal distribution of productive forces.
During the past 30 years, there has been complete and partial destruction of human settlements in 2 regions - economic zones in the territory of the Republic of Azerbaijan. Thus, the area of the Upper Karabakh Economic Region is 7,000 km², with a density of 84 people per km²:
It comprises the following cities and districts,
1) Aghdam
2) Tartar
3) Khojavand
4) Khojali
5) Shusha
6) Jabrayil
7) Fuzuli
8) Khankendi
Out of these, the settlements of Tartar, Khojavand, Shusha and Khankandi were partially destroyed. Completely destroyed settlements are Aghdam, Khojaly, Jabrayil and Fuzuli.
Kalbajar-Lachin economic region encompasses an area of 6,400 km², with a population density of 35 people per 1 km². Kalbajar-Lachin economic region comprises Kalbajar, Lachin, Zangilan and Gubadli districts. These four districts can be classified as destroyed cities. By the means of the specially drawn up table, districts, cities, territories, and population density per km² in these areas are compiled separately according to economic regions. Referring to the statistical data, it can be concluded that there are 13 cities and 985 rural and village-type settlements in the 12 districts of the 2 economic regions. The expression "existed" sounds more accurate for nowadays. Reconstruction and restoration zones are generally available with an area capacity of 13391.5 km². If the ratios of the territorial capacity of the districts are compared from large to small, the following ranking emerges:
1) Kalbajar
2) Lachyn
3) Khojavand
4) Fuzuli
5) Aghdam
6) Jabrayil
7) Tartar
8) Khojali
9) Gubadly
10) Zangilan
11) Shusha
12) Khamenei

In terms of population density, such a comparative ranking, from high to low, is as follows:
1) Aghdam
2) Tartar
3) Shusha
4) Fuzuli
5) Jabrayil
6) Zangilan
7) Gubadly
8) Lachyn
9) Khojavand
10) Khojali
11) Kalbajar
It should be noted that the information on the number and density of the population of Khankandy has been distorted and does not appear in the above comparison because of its disputed content.

Table 1. Information on the liberated territories

N	Economic region	Regions	Cities	Total number of villages and settlements	Region area (km²)	Population per 1 km² (person)
1	Upper Karabagh	Aghdam	1	126	1150	125
		Tartar	2	77	957	102
		Khojavand	1	82	1458	28
		Khojali	1	51	936	27
		Shusha	1	30	29	98
		Jabrayil	1	95	1050	67
		Fuzuli	1	76	1390	81
		Khankendi	1	0	25.6	-
	TOTAL	**8**	**9**	**537**	**6995.5**	
2	Kalbajar-Lachyn	Kalbajar	1	146	3054	25
		Lachyn	1	124	1835	39
		Zangilan	1	83	707	55
		Gubadly	1	95	800	47
	TOTAL	**4**	**4**	**448**	**6396**	
	Overall total	**12**	**13**	**985**	**13391.5**	

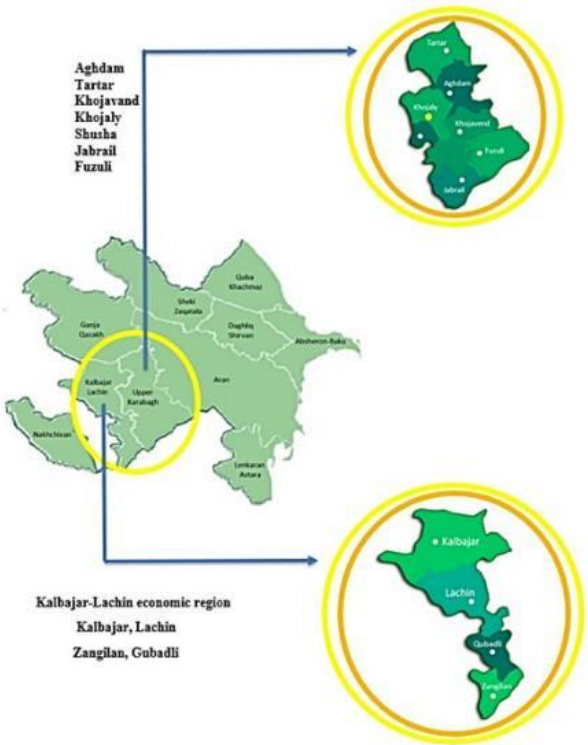

Figure 1. Territories of Azerbaijan areas that are in need of restoration and reconstruction. Upper Karabagh economic region

When considering the general reconstruction and restoration projects of the regions mentioned in the table from an integrated system, a reference was made to the statement "Following the liberation of the Kalbajar-Lachyn and Upper Karabagh economic regions from Armenian occupation, a special program for the socio-economic development of these regions will be developed and implemented" *(The regions of Azerbaijan. State Statistical Committee of the Republic of Azerbaijan. Baku-2009 page.10).* Consequently, consideration should be paid to the application of a specific methodology to urban planning principles in regional, district, urban and rural areas in liberated economic regions. At the very same time, urban planning projects must be carried out within the existing architectural and urban planning legislation of the Republic of Azerbaijan. The above-mentioned project phases and finally the construction and installation work can be started once a detailed project plan has been drawn up. Planned urban development projects include:

- Planning of economic regions should mainly refer to the state program on socio-economic development of these regions, developed specifically for 4 years.
- Draft master plans should include 32 schemes that are important for cities subjected to occupation, according to existing urban planning laws. Certainly, there will be a need to develop additional schemes for the liberated cities.

1) Scheme of suburban areas
2) Scheme of the current state of the area

3) General Plan of the city
4) Evaluation scheme of the existing general plan
5) Integrated Area Assessment Scheme
6) Scheme of area zoning types
7) Density and floor scheme of buildings
8) Allocation plan of the area by property
9) Restrictions scheme
10) Scheme of protected monuments of historical culture and cities
11) External and internal transport scheme
12) Scheme of public transport
13) Engineering Training Scheme
14) Water supply scheme
15) Wastewater supply scheme
16) Gas and heat supply scheme
17) Power supply scheme
18) Communication scheme
19) Landscaping scheme
20) Environmental forecasting scheme
21) Plan for categorizing the area according to purpose and legal order.
22) Housing fund scheme
23) Scheme of basic job places
24) Scheme of socio-cultural, medical, educational, special premises and offices
25) Scheme of the ecological state of the area
26) Sound scheme of the area
27) Scheme of cultural-architectural monuments and buildings in need of restoration
28) "Urban Image" scheme to restore the city's historic border structure.
29) Conducting an estimated area coding for all neighbourhoods in the city.
30) Territorial boundaries where state-of-the-art technological equipment is applied (smart zone).
31) Scheme of alternative energy sources in suburban areas
32) Construction-planning solution for the central part of the city.

These processes should plan based on the restoration of the city borders prior occupation, the state policy for the further development of the city territories, the restoration of functional zones that can be preserved in the destroyed territories before the occupation and with other processes.

3. Results and Discussion

Particularly, it is important to design general city plans by projecting up to the next 15 years after calculating the potential returning population in 5-10 years, rather than the existing population. Generally, the first phase and reporting period are considered in the field implementation of urban development projects. It is likely that the urban planning of our liberated cities will be carried out within the requirements of the new term. More precisely:

1) Maximum assessment of the natural climate, terrain, landscape capacity of newly created

cities.
2) Defining categories of cities in newly created area plans
3) Identifying the application of new modern urban planning principles in certain cities
4) Defining the development of new functional areas in line with contemporary ways of living
5) Defining the maximum limit of the urbanization process over 30 years
6) Sustainable development in rebuilt cities, application of Sustainable architecture theories
7) Preparing public consciousness for the new urban planning process
8) Defining the initial, average, and sustainable time frame of the "Great Return" period
9) This will be possible if unified urban planning principles are established, with attempts to address the sensitive environmental problems of newly created cities and other such activities.

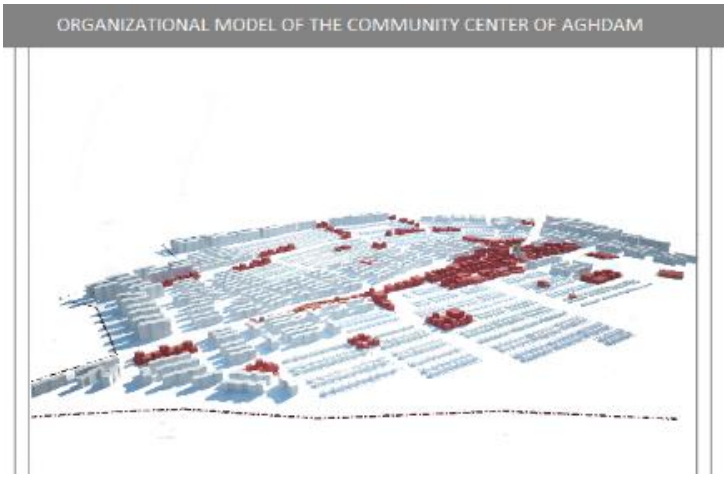

Figure 2. Organization model of the community center of Aghdam

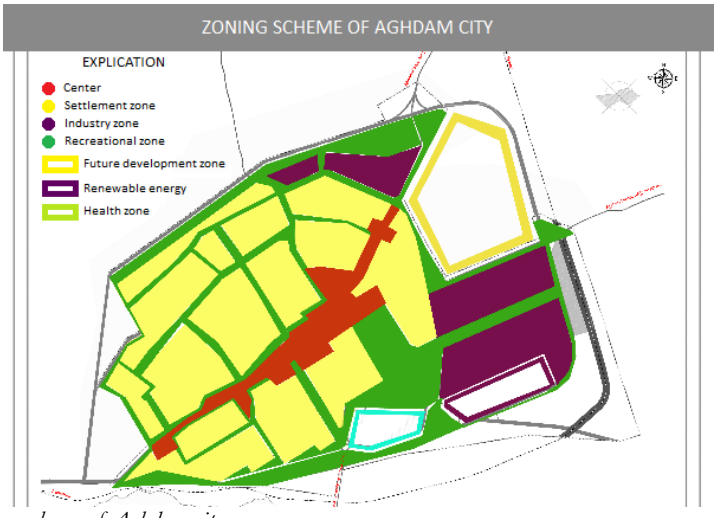

Figure 3. Zonning scheme of Aghdam city

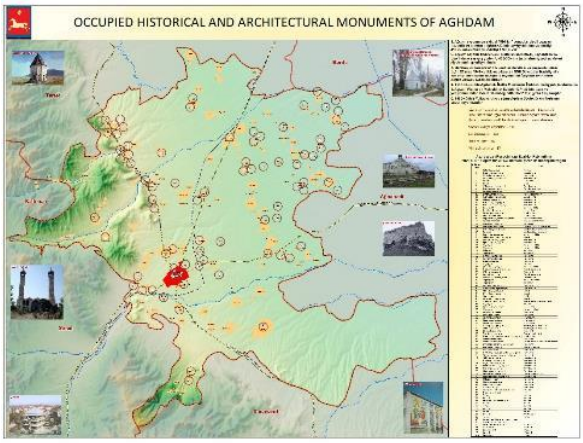

Figure 4. Occupied historical and architectural monuments of Aghdam

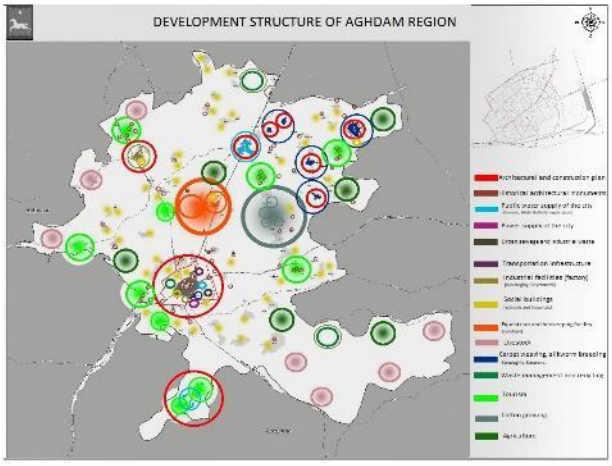

Figure 5. Development structure of Aghdam region

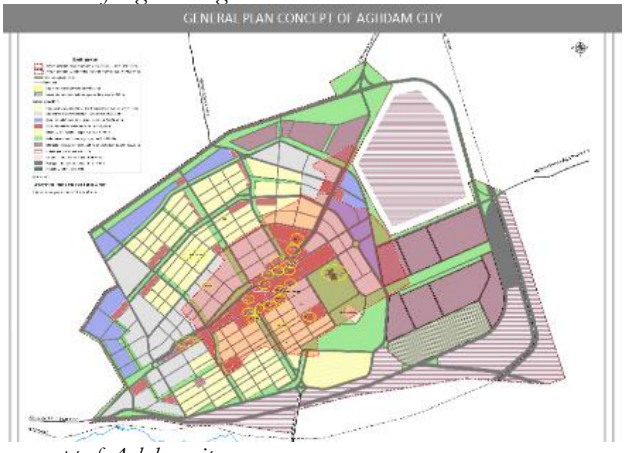

Figure 6. General plan concept of Aghdam city

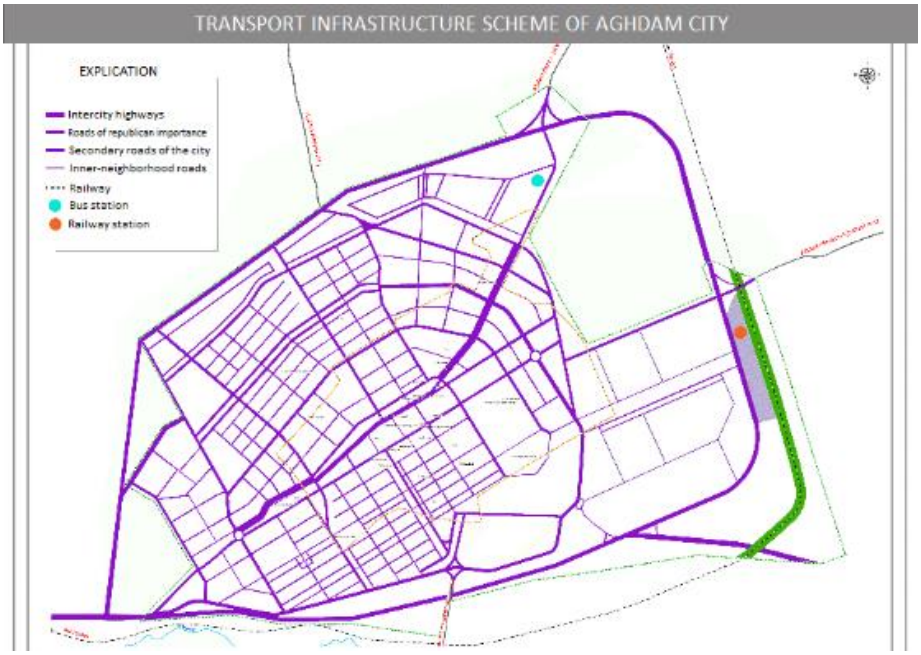

Figure 7. Transport infrastructure scheme of Aghdam city

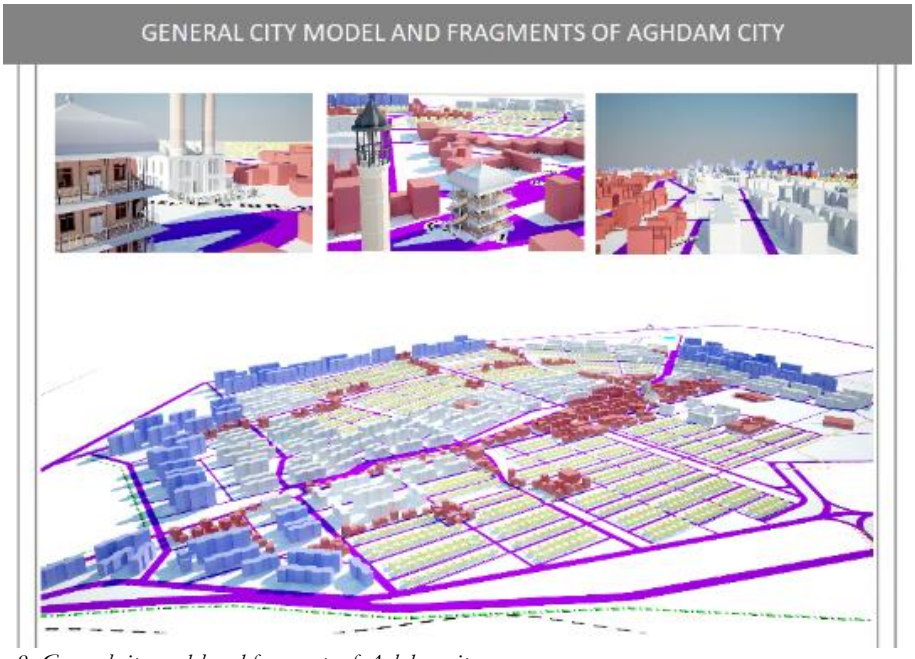

Figure 8. General city model and fragments of Aghdam city

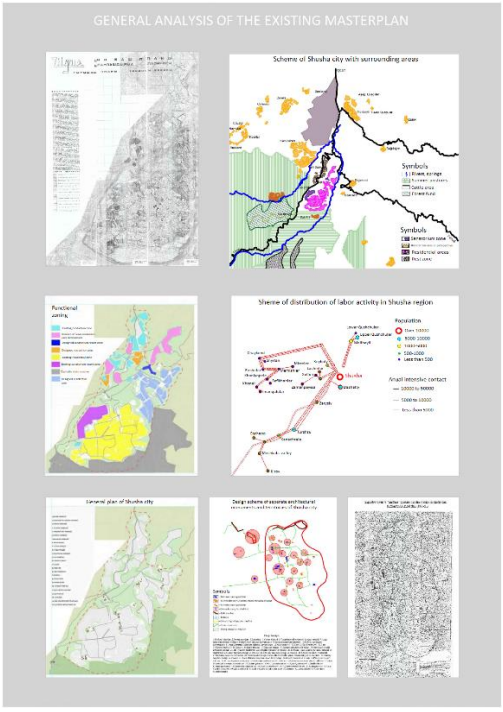

Figure 9. General analysis of the existing masterplan

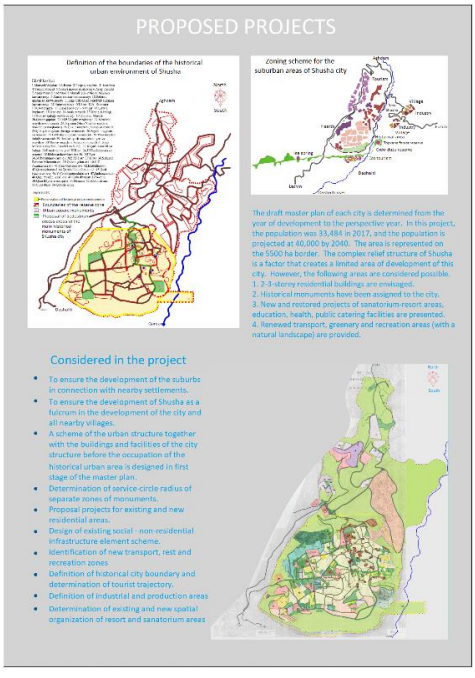

Figure 10. Proposed projects

The next stage of urban planning is detailed planning projects. It should be considered important to add a new special line to these project documents. This is because one of the priorities is to provide project documentation to individual homeowners of demolished homes. After the process of disintegration of the city and all its elements over 30 years. It will not be possible to completely restore the remains of individual houses at a height of 0,30 m to 0,50 m above the ground and hand them over to their owners. It is important to propose a specific design method to solve this process as smoothly and without inconsistency as possible. For instance: a new coding program should be introduced to inventory individual houses demolished in residential areas along the same lines in different cities. Starting with the reference points, it is possible to offer encrypted property areas with a special planning design. The citizen could get acquainted with the design project and get a choice in the proposal of the yard area of a private house, which is offered in its place, and sometimes in a nearby area. In this case, the proposal of land plots can be considered with a standardized territorial division between 6-12 m². A modular design system can be proposed in a project fragment with 30% new areas to accommodate the demolished individual houses surrounded by 100 dwellings on the existing sites.

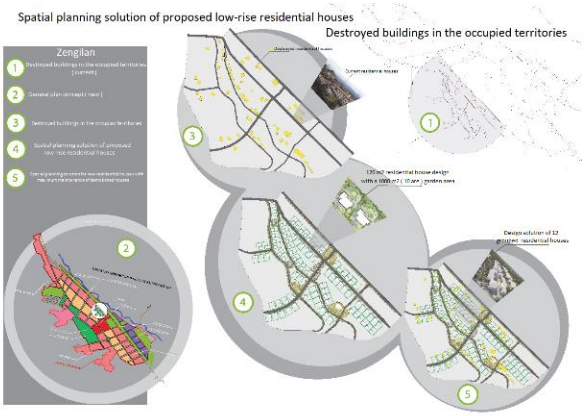

Figure 11. Spatial planning solution of proposed low-rise residental houses

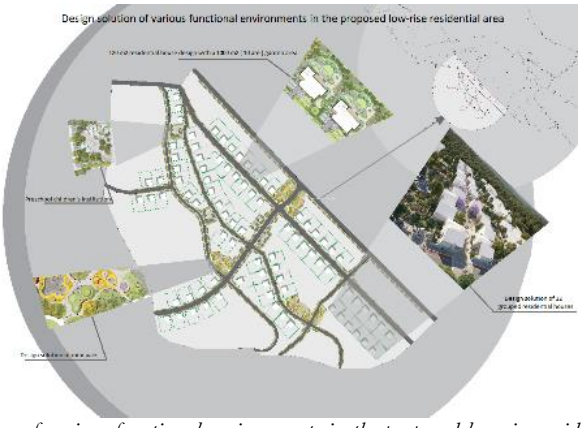

Figure 12. Design solution of various functional environments in the proposed low-rise residental area

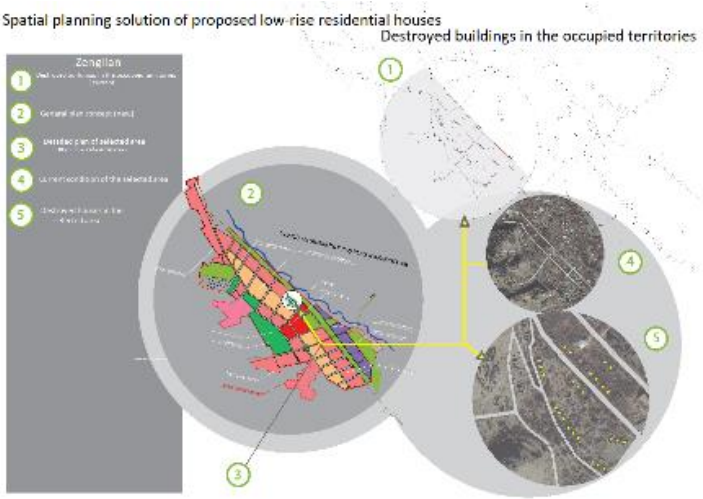

Figure 13. Spatial planning solution of proposed low-rise residental houses. Destroyed buildings in the occupied territories

Certainly, we are a nation that creates a team, wants to live a beautiful and right life, and builds a city in the full sense of the word. This is a holy mission granted to us. It comes from a desire that encourages us to look forward to the future, to work, to create a team. All our strength, will, knowledge, and practice will be enough to build our destroyed cities, shattered destinies, and a damaged world. Together with our strong state and goodwill people.

4. Conclusion and Discussion

The analysis provides a rationale for the theory of "Sustainable Development" and "Sustainable City" in the reconstruction of towns or districts destroyed by various factors:

- calculation of time and destruction rates in these areas;
- restoration of dominants and accents considered compositional elements in the architectural images of urban development objects, in previous areas;
- restoration of the image of the city's historic built-up area within the pre-demolished boundaries by at least 25 percent;
- in addition to the realization of infrastructure and social projects, providing the Green Light for private and individual investments in the process of implementing new Master Plans;

In the process of reconstruction, conditions should be ensured at maximum through special programs like "return of the population" of people who were forced to leave their towns.

5. Conclusion

The results of the research led to the development of an urban planning methodology based on an assessment of the degree of destruction of residential areas affected by the hostilities. The use of the proposed methodology will save time in assessing the damage caused to capital construction facilities, which form the basis for starting the process of urban reconstruction and providing its basic basis at all other levels of territorial and urban planning. The importance of using this approach is that it provides an opportunity to determine the degree of destruction of residential areas in special circumstances - the conduct of hostilities in the city and the resulting complexity of field assessment. The results achieved can be extended to most Azerbaijan cities because they share an architectural, planning and social character and are subject to the same types of mechanisms and weapons of destruction.

In summary, highly appreciating the great achievements in urban planning in recent decades, one cannot but see its certain shortcomings. On the one hand, the progressive principles of preserving the historical structure of cities with its simultaneous improvement, functional zoning of the city territory; development by large housing estates; rational construction of service networks; improvement of the urban environment by means of architecture and improvement of its transport conditions. And on the other side, the separation in some cases of an artistic and figurative origin in the architecture of the city from the modern material, technical and functional foundations of urban planning; dogmatic methods of planning and development of cities of the 18th- early 19th centuries, attempts to subjugate the development of the city to closed and in some cases archaized planning schemes. This contradiction and duality have manifested themselves in all areas of modern architecture.

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