

ECONOMICAL AND GEOGRAPHICAL PROBLEMS OF THE DEVELOPMENT OF THE BAKU AGGLOMERATION: THE NEXUS OF SUSTAINABLE SETTLEMENT AND URBANIZATION

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Annotation

The article examines the modern socio-demographic structure of the city of Baku and provides a description of the ongoing demographic processes under the influence of various economic and geographical factors. In the development plan of the Baku urban agglomeration, a detailed structural description of individual administrative districts of the city of Baku is given and overpopulated areas and the level of uneven distribution of the population in the city are identified. As a result of the study, measures are proposed to optimize the urban environment in the context of modern urbanization processes.

Keywords: Overpopulation, Urban transformation, Rationalization of the Urban Environment, Urban Re-development, Sustainable Settlement

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Introduction

The growth of the urban population accelerates the processes of urbanization. The main tasks of most large cities are the management of socio-economic and demographic development, rational use of land in the central and adjacent areas, functional zoning, maintaining the ecological balance, solving the problems of employment and housing, and improving the quality of socio-cultural services. However, in the context of rapid population growth, strengthening of the economic base and expansion of urban areas, their solution is becoming increasingly difficult. This situation is typical for many countries and regions of the world, which necessitates the study of scientific and practical approaches to managing the development of large cities.

Baku is the largest city and the capital of the Republic of Azerbaijan. It is also the most densely populated urban agglomeration not only in the South Caucasus, but also in the Caspian sub-region. The factor of natural resource potential (NRP), which revealed itself in the presence of oil and gas resources, combined with the factor of the economic, geographical and transport (EGT) location of the city, which, in fact, turned Baku into the largest urban agglomeration in the region. [2, 4]

The modern administrative-territorial structure of the Republic of Azerbaijan consists of 64 districts, 79 cities, 262 towns, as well as 4244 rural settlements. The geographical distribution of settlements and the settlement of the population has a very high unevenness, which is associated with both

natural and geographical and socio-economic factors that have determined the dynamics of the development of individual regions of the country. Since July 7, 2021, a new system of economic regions of the country has been adopted, which consists of 14 economic regions, including one capital Baku and one autonomous Nakhchivan economic regions.

Materials and methods

For a detailed analysis and study of modern economic-geographical and socio-demographic conditions that influence the formation of the urban environment in Greater Baku and its sustainable development, methods of economic-geographical analysis were used, as well as complex methods of integrated comparison of the specific weight of the territory of the population of the corresponding administrative-territorial entities of Baku.

The research methods were improved from the sources of modern researchers in the field of demographic changes and population dynamics, such as Afandiyev V.A., Eminov Z.N., Nagiyev S.G., Badalov E.S. and others. [3, 5, 10, 12]

In the analysis of the modern demographic structure of the Baku urban agglomeration, mathematical and statistical methods of analysis and comparison of indicators were applied.

The settlement system of Baku city has its own uniqueness due to the presence of 12 districts inside Baku and the entry of the cities of Sumgait and Khirdalan into the Baku urban agglomeration. The structure of the Baku urban agglomeration, considering the Baku Economic Region, includes 59 settlements. Of the lower 27 have a population of less than 10,000 people, and 32 have a population of more than 10,000. [1, 6]

The population dynamics of Baku has historically had an unstable structure. It often changed its growth rate, which was mainly due to the influence of mechanical changes in the structure of the natural movement of the population (Table 1).

Table 1. Population dynamics of Baku city [1]

№	Years	Population, thsd. per- son	Total annual increase	
			thsd. person	%
1.	1979	1 549,8	–	–
2.	1984	1 661,1	18,55	1,44
3.	1989	1 794,9	22,30	1,34
4.	1994	1 764,5	–5,07	–0,28
5.	1999	1 788,9	4,07	0,23
6.	2004	1 889,0	16,68	0,93
7.	2009	2 045,8	26,13	1,38
8.	2014	2 181,8	22,67	1,11
9.	2019	2 330,4	24,77	1,13
10.	2024	2 344,9	2,42	0,10

The State Statistical Committee of the Republic of Azerbaijan, 2024

The above indicators reflect the demographic development structure of Baku over the past 45 years with intervals. According to the indicators, the city's population growth rate in 1979-1984 was 14.4‰. During the First Karabakh War and the first years of the country's independence, this indicator varied between -2.8 (loss) and 2.3 (growth).

Later, this indicator was within 10-14‰ (2004-2019). Currently, the annual population growth rate of the city is about 10 ‰. [13]

One of the main problems of sustainable development of the Baku urban agglomeration is the disproportionate distribution of the population in its districts. Thus, in the central districts the population density reaches 20 thousand per 1 km², while in the suburbs this figure is below thousand. Detailed information on the territorial distribution of the city's population is given in Table 2.

Table 2. Pattern between territory, population and population density [1]

No	Administrative-territorial unit	Territory, thsd. km ²	Population, thsd. person	Population density, per 1 km ²
*	Baku	2,10	2 344,9	1 117
1.	Binagadi	0,13	307,9	2 368
2.	Khatai	0,03	276,1	9 203
3.	Khazar	0,37	205,5	555
4.	Garadagh	1,08	117,0	108
5.	Narimanov	0,02	180,7	9 035
6.	Nasimi	0,01	219,2	21 920
7.	Nizami	0,02	185,3	9 265
8.	Pirallahi	0,03	18,8	627
9.	Sabunchu	0,24	330,6	1 378
10.	Sabail	0,03	101,8	3 393
11.	Surakhani	0,12	208,2	1 735
12.	Yasamal	0,02	193,8	9 690

The State Statistical Committee of the Republic of Azerbaijan, 2024

According to Table 2, the most densely populated district of Baku is Nasimi district with a population density of 21,920 per 1 km². This indicator is 19.6 times higher than the average city density (ACD). The lowest indicator is typical for the suburban Garadagh district at 108 people per 1 km². The most densely populated districts after Nasimi are Yasamal (8.68 times more than the ACD), Nizami (8.29 times more than the ACD), Khatai (8.23 times more than the ACD) and Narimanov (8.08 times more than the ACD) (Figure 1).

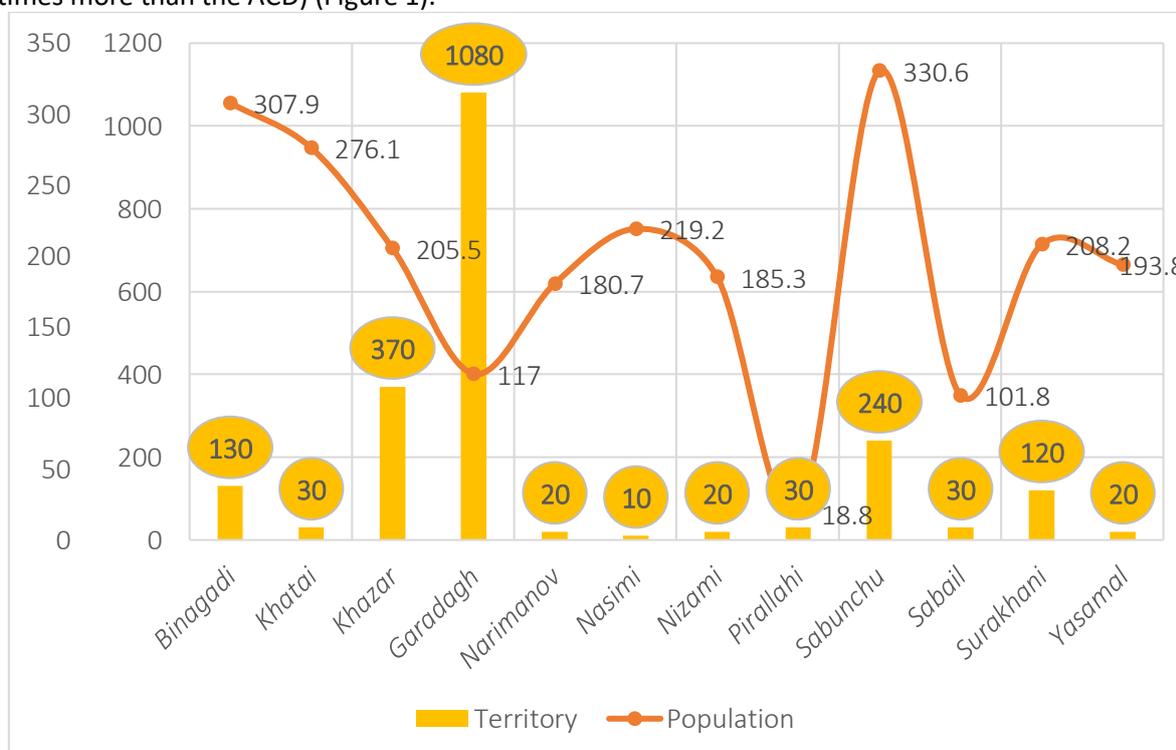


Figure 1. Comparison of the population density indexes of the city regions

The districts with the lowest population density after Garadagh include Khazar (2.01 times less than ACD), Pirallahi (1.78 times less than ACD) and Sabunchu (1.23 times more than ACD). [3, 7, 14]

The integral coefficient calculated by us based on the indicators of the specific weight of the territory and population gives the degree of territorial concentration for the city districts (Figure 2).

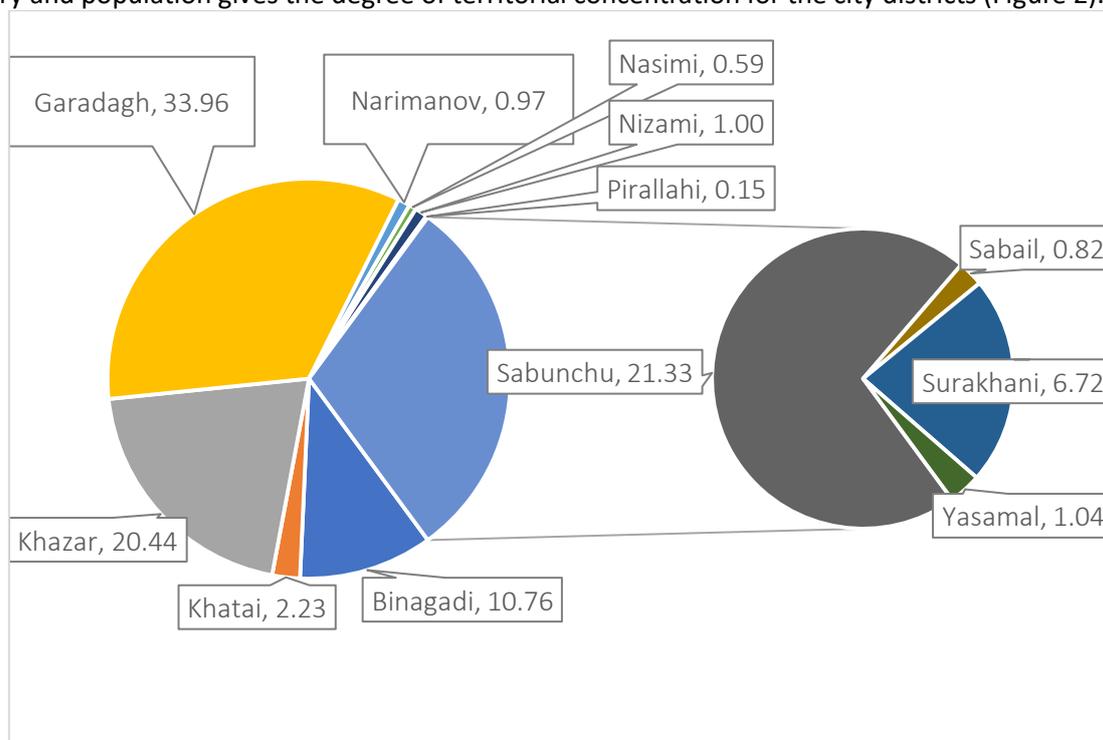


Figure 2. The specific weight of the coefficients of territorial concentration of administrative entities of the city of Baku ^[1]

The Baku urban agglomeration is also the most densely populated economic zone of the Republic of Azerbaijan. The average density indicator increases the national average by 9.47 times. In fact, the neighboring Absheron-Khizi economic region, the cities of Sumgait and Khirdalan, which can be directly attributed to the Baku urban agglomeration, has the second highest average population density of 225 people per 1 km².

The intensive socio-economic growth of the urban environment actively influences the formation of suburban settlements, which are gradually turning into villages and populated areas. Table 3 shows the administrative-territorial structure of the city of Baku. [8, 11]

Table 3. Administrative territorial divisions by administrative districts of the Baku

No	Administrative-territorial unit	Urban districts	Settlements	Settlements administrative districts	Regional administrative territorial districts
*	Baku	12	59	48	21
1.	Binagadi	1	6	5	2
2.	Khatai	1	1	1	4
3.	Khazar	1	8	8	–
4.	Garadagh	1	21	11	–
5.	Narimanov	1	–	–	3
6.	Nasimi	1	–	–	3

7.	Nizami	1	1	1	3
8.	Pirallahi	1	4	4	–
9.	Sabunchu	1	10	10	–
10.	Sabail	1	2	2	2
11.	Surakhani	1	6	6	–
12.	Yasamal	1	–	–	4

Baku has the largest number of settlements among all economic regions of the country. Every 5th settlement in the country is located here. This is primarily due to the uneven distribution of the population and historical and geographical factors of the city's development.

The largest settlements of the city of Baku are the villages of Mashtagha (91.6 thousand people), Bina (80.4 thousand people), Bilajari (76.9 thousand people), Garachukhur (76.6 thousand people), Bakikhanov (65.0 thousand people), M. A. Rasulzade (52.3 thousand people), Hovsan (47.8 thousand people), Binagadi (45.0 thousand people), Zabrat (37.9 thousand people), Ramana (37.3 thousand people), Lokbatan (34.6 thousand people), Buzovna (34.4 thousand people), Mardakan (32.1 thousand people), Amirjan (30.5 thousand people), Badamdar (29.7 thousand people), Keshla (28.8 thousand people), Sabunchu (26.0 thousand people), Bulbula (24.8 thousand people), Nardaran (24.2 thousand people), Sahil (22.3 thousand people), Balakhany (21.4 thousand people), Shuvalan (20.9 thousand people), Sulutepe (20.3 thousand people). As we can see, 6 of them have an official population of over 50,000 people, but are still called settlements. To reduce the load on the central part of the city, it would be advisable to create the appropriate infrastructure and services in these settlements. [1, 9, 10]

Another problem of ensuring sustainable urban development and urbanization of the city is the counting of the entire population as urban. This creates the phenomenon of complete urbanization. However, it should be noted that not all residents are near the city center, and not all have direct transport access to this area. Also, more than half of the city's residents are deprived of modern urban services, which creates a big question about their inclusion in the number of urban populations.

If we take a hypothetical "Big City" covering the urban center of the Baku agglomeration, it will include the Narimanov, Nasimi, Nizami, Sabail, Khatai and Yasamal administrative districts. The total population of these areas is 1,156.9 thousand people, and the degree of direct urbanization is 49.3%.

Results and discussion

The irrational development of settlements and the uncontrolled territorial expansion of Baku have caused a phenomenon known as "pseudo-urbanization". As a result, a large agglomeration has formed, the management of which presents significant difficulties. At the same time, the excessive concentration of population and economic activity within Greater Baku has a negative impact on its economic and demographic potential and hinders the development of other regions of Azerbaijan.

Land in Greater Baku is a valuable and limited resource. The agglomeration is home to numerous large residential areas, while agricultural land, former industrial areas and oil field lands have been converted into residential development. This has led to a decrease in the natural and ecological potential of the land, and residents have faced problems with hot water, electricity and heating. To improve the situation, it is necessary to identify and allocate areas for the creation of industrial, commercial, green and recreational zones.

To solve these problems, several industrial, transport, trade and infrastructure facilities are being transferred outside the city and to other regions. Among them are the Sea Port, ship repair and ship-building plants, Oil Refinery, oil engineering enterprises, bus station, as well as shopping centers, warehouses and infrastructure facilities. New buildings and residential complexes are being erected in the Ag Sheher district. Ring roads, bridges, highways, extensive interchanges and tunnels are being built around the city, which is aimed at reducing traffic jams and improving the transport system. However, the measures taken are not enough, and additional significant projects need to be implemented.

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