Assessment of the quality of life of the population in Azerbaijan (on the example of the Greater Caucasus)

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ABSTRACT

Problem definition. Improving the quality of life of the population is a priority task in solving the socio-economic development problems of countries. In ensuring socio-economic development, it is of great importance to investigate and identify the issues related to the quality of life of the population, as well as to determine the directions for addressing these issues. One of the key conditions for solving these problems is the extensive use of comprehensive assessment methods.

Formulation of the purpose. The study was conducted with the aim of assessing the quality of life of the population in the administrative districts of the Greater Caucasus region, identifying regional disparities, and proposing solutions to address them.

Research methods. The study of changes in the quality of life indicators of the population in the Greater Caucasus region, the examination of the socio-economic conditions and demographic issues of the population, as well as efforts to address them, were carried out using system-structural, comparative analysis, geographic modeling, and cartographic methods (ArcGIS software) for transferring the collected data onto maps. During the mathematical-statistical calculations, MS Excel and its processing tools such as Xlstat were utilized. In the research, while assessing the quality of life of the population, indicators were indexed by taking into account demographic, economic, social, and environmental factors. In this study, the author proposes the calculation of a Quality of Life Index (QLI) to measure the quality of life of the population or the overall development level of regions.

The main material. For the assessment of the quality of life of the population, four groups of indicators have been identified: demographic, economic, social, and environmental. In the study, the author proposed the calculation of the Quality of Life Index (QLI) to measure the overall development level of the population or regions. The Quality of Life Index is calculated as the geometric mean of four indices (demographic, economic, social, and environmental). The comparative assessment of the quality of life using indexing has been carried out for the first time in the region. When calculating the index, various indicators are taken into account. Each of these indicators has a specific weight, which varies according to the characteristics of the indicators. The main purpose of indexing is to standardize the indicators in order to compare regions.

Conclusions. The analysis revealed that the weights of the indices are variable. This variability depends on the geographical location, area, level of socio-economic development, population size, and settlement patterns of the regions. The Quality of Life Index was normalized to a range between 0 and 1, where a value of '1' indicates the region with the highest quality of life compared to others, and '0' represents the region with the lowest. The index values were grouped as follows: low (0.100–0.399), medium (0.400–0.599), high (0.600–0.899), and very high (0.900–1.000).

Keywords: Greater Caucasus region, quality of life of the population, Quality of Life Index, demographic indicators, socio-economic indicators, environmental indicators, regional disparities.

Problem definition. Quality of life is a complex concept that serves as a criterion for the extent to which individuals are able to meet their needs. In a broader sense, it is determined by the changing nature of personal needs over time, the level of development, and the cost and quality of services used to satisfy those needs [24]. At present, there are various internationally recognized standards and indicators used to define quality of life across the world. These indicators are characterized by a range of attributes: general and personal, quantitative and qualitative, economic and socio-demographic, among others [17, 25]. It is impossible to develop a methodology that comprehensively covers the indicators characterizing quality of life while simultaneously being applicable to every country. This is due to the uneven opportunities for socio-economic development, the diversity of natural resources, the influence of geographical location, the level of development, national values, and differences in ecological conditions. The quality of life of the population in each region is determined by the state of the natural environment, health indicators, the level of economic development, and technological capacity. A high quality of life is the result of both material and spiritual development [28]. Thus, quality of life implies that the population is provided with quality services, taking into account not only statistical figures but also individuals' own perceptions regarding favorable living conditions, comfort, and the state of their environment. Such an approach may differ completely among people due to their worldview, outlook on life, and other characteristic features.

Analysis of recent research. The study of quality of life, as one of the main directions of political and economic geography, requires a comprehensive assessment of people's living standards,

socio-economic conditions, and interactions with the environment. Over the past decades, both international and local researchers have examined various aspects of this issue and contributed valuable insights to the field. The concept of quality of life encompasses economic, social, ecological, and demographic factors, which makes research in this area multidimensional. In this context, the Human Development Index (HDI) introduced by the United Nations Development Programme (UNDP) is considered one of the key indicators for comparing living standards across countries [30]. International studies have addressed different dimensions of quality of life. D.F.Cella (1994) proposed several models for measuring quality of life and emphasized the importance of assessing subjective well-being. R.Luiz (2008) and C.F.Alfredo (2008) conducted empirical analyses of the relationship between regional socio-economic development levels and living standards, particularly focusing on rural populations. P.Evelina (2009) and K.Nick (2009) modelled the relationships among economic welfare, income levels, and life satisfaction, and systematized the role of social indicators such as education, healthcare, and employment in shaping quality of life. K. Rusen (2012) investigated the influence of environmental factors on public health and overall well-being.

Among Azerbaijani researchers, A.N. Muradov (2007) examined the impact of regional socio-economic development indicators on population welfare. U.K. Alakbarov (2013) analysed the relationship between sustainable human development, the environment, and living standards. J.B. Guliyev (2014) explored the socio-economic challenges associated with improving living standards and quality of life.

Other studies in Azerbaijan focus mainly on regional development, demographic processes, and socio-economic conditions. Sh.M. Muradov (2004) assessed the effects of demographic changes on settlement patterns and the socio-economic environment. Z.N. Eminov (2010) evaluated demographic trends, regional development potential, and the socio-economic consequences of migration processes. N.A. Pashayev (2010) and E.S. Badalov (2016) analysed interregional socio-economic disparities and conducted comprehensive assessments of socio-economic development indicators. Z.T. Imrani (2021) and Sh.I. Mammadova (2021) carried out complex analyses of the socio-economic development directions of regions and the existing environmental challenges. R.N. Karimov (2022), G.R. Agakishiyeva (2022), and S.I. Rzayeva (2022) evaluated factors such as regional economic potential, industrial activity, population distribution, and infrastructure development, emphasizing the need to align these factors with sustainable development principles, and analysed regional development issues using modern methodological approaches.

Overall, the research reviewed indicates that assessing quality of life requires a multidisciplinary approach, and the integrated analysis of economic, social, ecological, and demographic factors constitutes one of the key methodological directions in this field.

Formulation of the purpose. The main objective of this research is to assess the quality of life of the population in the Greater Caucasus region, to identify the interrelation between relevant indicators, and to reveal the regional disparities associated with these factors.

Research methods. The analyses conducted in this research are of significant importance in terms of studying the quality of life of the population in Azerbaijan, identifying the influencing factors, and comparing the findings across administrative districts. In the theoretical part of the study, data were collected and analyzed based on both international and local literature. Additionally, the United Nations Human Development Reports and global reports on quality of life and the Human Development Index (HDI) were used as primary sources of information. Statistical data for the research were obtained from the materials of the State Statistical Committee of the Republic of Azerbaijan.

During the implementation of the research, system-structural, comparative analysis, and mathematical-statistical methods were employed to analyze information on the socio-economic situation of the region and to study demographic indicators. To examine and address socio-economic, ecological, and demographic problems, a development model was applied, and cartographic methods (using ArcGIS software) were used to visualize the obtained data on maps. In the process of mathematical-statistical calculations, software tools such as MS Excel and its XLStat extension were utilized for data processing.

In the research, while assessing the quality of life of the population, indicators were indexed by taking into account demographic, economic, social, and environmental factors. To calculate the index, the maximum (x_{max}), minimum (x_{min}), and actual (x_i) values of each indicator are used (Formula 1). The following formulas are applied to convert any given xxx indicator into an index: [30]:

$$I = \frac{X_i - X_{min}}{X_{max} - X_{min}} \quad \text{or} \quad I = \frac{X_{max} - X_i}{X_{max} - X_{min}} \quad (1)$$

The formulas are intended for the calculation of positive and negative indicators, respectively, and the standardized values fall within the range of (0;1). Each equation is designed for a single indicator. If

there are multiple factors, the arithmetic mean of their individual indices should be calculated separately.

Thus, by summarizing the above, four groups of indicators can be identified for assessing the quality of life: demographic, economic, social, and environmental. In this study, the author proposes the calculation of a Quality of Life Index (QLI) to measure the quality of life of the population or the overall development level of regions. The Quality of Life Index is calculated as the geometric mean of four indices (demographic, economic, social, and ecological) (Formula 2).

$$QLI= \sqrt[4]{I_d \times I_e \times I_s \times I_{eco}} \qquad (2)$$

here,

QLI – quality of life index,

I_d – demographic index,

I_e – economic indicators index,

I_s – social indicators index,

I_{eco} – is an index of environmental indicators.

The regions of the country differ significantly in terms of socio-economic development levels and environmental quality. For example, a city with a high level of socio-economic development may exhibit low environmental quality, or vice versa. Therefore, to more accurately assess the impact of both aspects, it is more appropriate to calculate ecological and socio-economic indicators separately.

To emphasize the importance of ecological indicators in the development level of a region, the methodology for calculating ecological indicators within the Human Development Index has been applied [27]. The main purpose of calculating the ecological index separately is to analyze the impact of ecological factors on regional development dynamics. This approach makes it possible to more clearly observe the relationship between ecological factors and human development. At the same time, it facilitates the formulation of relevant development strategies in this field. The integration of ecological indicators is essential not only for economic and social development but also for ensuring the sustainability of ecosystems.

Demographic, economic, and social indicators were indexed, and their geometric mean was calculated to obtain the Quality of Life Index (QLI) (Formula 3). Considering ecological indicators as well, the Quality of Life Index with ecological factors (QLI$_{eco}$) (Formula 4) was proposed using the following formulas:

$$QLI= \sqrt[3]{I_d \times I_e \times I_s} \qquad (3)$$

$$QLI_{eco}=1/4(3 \times QLI + I_{eco}) \qquad (4)$$

The Quality of Life Index is normalized within the range of (0;1). A value of "1" indicates that the region has the best quality of life compared to other regions, while "0" represents the worst indicators. The index values are grouped into four categories: low (0.100-0.399), medium (0.400-0.599), high (0.600-0.899), and very high (0.900-1.00).

The main material. The quality of life of the population and its individual components form the foundation of a country's socio-economic development. The regulation and development of human potential is a strategically important function of the state at both national and regional levels. The significant progress achieved in improving the standard of living in Azerbaijan over the past decade has been made possible through the implementation of several key state programs. After gaining independence, the Republic of Azerbaijan was included among the countries comparable in terms of human development. Since 1993, Azerbaijan's performance has been reflected in the ranking tables of the UN's global Human Development Reports, based on various indicators [29]. Moreover, Azerbaijan's first National Human Development Report, based on data from 1992, was published in 1995. The "Globaldatalab" (Global Data Laboratory) project, created with the support of the European Research Council, provides Human Development Index data for 186 countries and their 1,783 regions [29]. For Azerbaijan's economic regions, indicators for health, education, and standard of living indices-as well as the composite Human Development Index-are available from 1995 to 2022. From this database, data were obtained for the research area including the economic regions of Baku, Absheron-Khizi, Shaki-Zagatala, Guba-Khachmaz, and Mountainous Shirvan [29]. Azerbaijan's Human Development Index increased by 11.4% from 1995 to 2005, by 10.4% from 2005 to 2010, and by 2.2% from 2015 to 2022. In the Greater Caucasus region, respective increases of 11.6%, 10.4%, and 4.0% were observed [10].

Since the indicators shaping quality of life and the emerging problems ultimately contribute to the development of the human factor, it is essential to assess the Human Development Index (HDI) in the region. Quality of life is influenced by factors such as life expectancy, maternal and infant mortality, and a complex interplay of health, education, income, safety, and environmental conditions. These indicators are, to a certain extent, interdependent. To analyze the relationships or dependencies among them, linear regression and correlation methods are widely used. These methods allow for evaluating the degree of dependency between indicators. The values of the correlation coefficient range from -1 to +1; the closer the value is to ±1, the stronger the relationship. The coefficient of determination (R^2) is a statistical measure that indicates how well the regression model explains the variation in the dependent variable(s) [17]. The interdependence of the

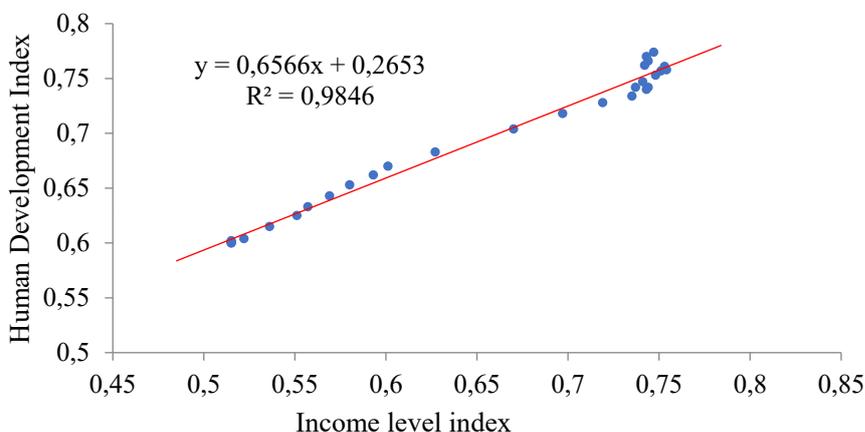Human Development Index with life expectancy, education, and income levels has been analyzed, and the indicator most strongly influencing the HDI has been identified (Graph 1, a, b, c).
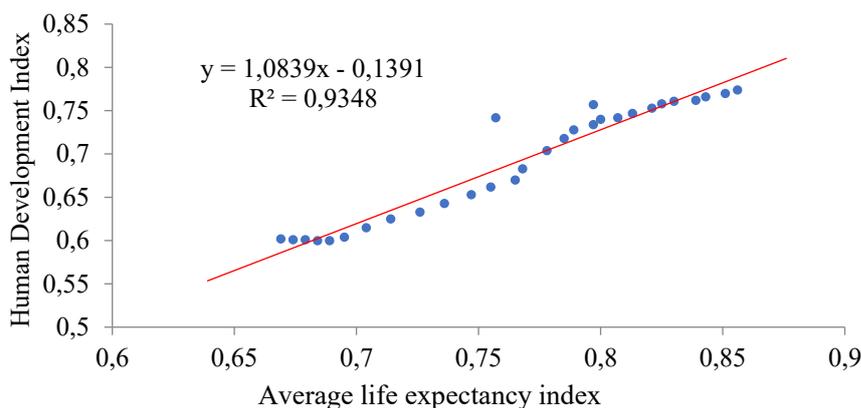
a)
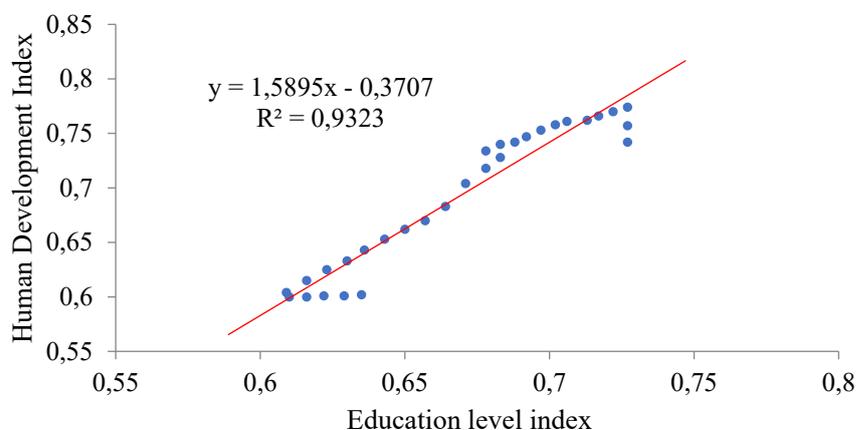
b)

c)

Graph 1. Dependence of the Human Development Index on life expectancy, education, and income level indices (*Source:* Charts compiled by the author based on data from the Global Data Laboratory [29])

It has been determined that the Human Development Index (HDI) depends more on income level than on the other factors. Specifically, the correlation coefficients are 0.967, 0.965, and 0.992, respectively. Correspondingly, the coefficients of determination (R²) are 0.935, 0.932, and 0.985. This indicates that the derived regression equation is statistically significant based on the data and is suitable for forecasting. Increases in life expectancy, education level, and income level explain approximately 94%, 93%, and 99% of the variation in the Human Development Index, respectively.

Another critical factor affecting quality of life is the environment. Humans have always been dependent on their environment. Nature has historically and continues to be a fundamental factor ensuring human survival and development. The environment serves as the primary source that meets the biologi-

cal and socio-economic needs of people. Evaluating the quality of the environment is one of the essential conditions for its effective management [11, 13]. Improper and unsafe waste disposal leads to the contamination of soil and water resources, increases epidemiological risks, and consequently deteriorates the quality of life. The emergence of diseases due to the adverse environmental effects of waste is a significant public health problem. Regardless of the proper management or disposal of waste, it can pose various environmental and health risks. These include water pollution, pathogens, chemical contaminants, soil pollution, heavy metal contamination, air pollution, waste incineration, landfill gases, direct contact and injury, and hazardous waste exposure. The negative impact of waste on the environment is a complex issue and can lead to a wide range of diseases. Efficient waste management and preventive measures are crucial for protecting public health and the environment.

Waste negatively impacts environmental quality and, consequently, affects the quality of life. It has been established that a reduction in the amount of pollutants influences the Human Development Index (HDI). To clearly observe this, the relationship between the quantity of pollutants released into the atmospheric air and the HDI was analyzed and presented in the form of a regression equation (Graph 2). The correlation coefficient value is -0.939, indicating a strong negative correlation between the amount of waste and the Human Development Index. The coefficient of determination (R^2) is 0.840, meaning that 84% of the variation is explained by this dependency. This signifies a strong interdependence between the variables. The correlation coefficient also suggests that higher values of pollutants emitted from stationary sources into the atmosphere correspond to lower HDI values, and vice versa. This clearly demonstrates a relationship between these factors. Therefore, when assessing the level of regional development, it is essential to consider factors affecting the ecological environment.
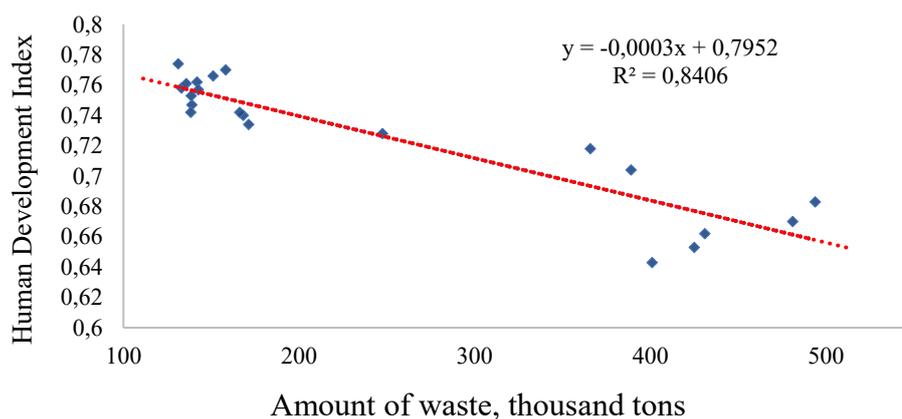
Graph 2. Dependence between the amount of pollutants released into atmospheric air and the Human Development Index (*Source:* Graph compiled by the author based on the statistical materials of "Environment in Azerbaijan" and data from the Global Data Laboratory [3, 29])

In September 2000, an international event called the "Millennium Forum" organized by the United Nations, was held, during which the Millennium Development Goals for the 21st century were established for countries worldwide. The MDGs adopted at the forum prioritized addressing issues aimed at significantly improving the quality of life for all people globally, including eliminating unemployment, increasing incomes, achieving universal education, reducing child mortality, combating diseases, improving environmental quality, and more [30].

The quality of life of the population is a key indicator reflecting and evaluating the socio-economic development of each state. This indicator should be assessed within a broader context, as it encompasses more than just factors such as health, education, and income.

For the first time, a comparative assessment of quality of life through indexation was carried out within the province. During the calculation of the index, various indicators were taken into account. Each region's geographical location, area, level of socio-economic development, population size, and settlement structure are factors influencing the index calculation. Each of these indicators carries a specific weight, which varies according to the characteristics of the indicators. The primary purpose of the indexation is to bring the indicators to a common scale in order to enable comparison between regions. The analysis revealed that the weights of the indices are variable. This variability depends on the geographical location, area, level of socio-economic development, population size, and settlement patterns of the regions.

Based on the proposed formulas for assessing the quality of life in the administrative districts within the Greater Caucasus region, calculations were performed using indicators such as average life expectancy, income, education level, water supply, and the amount of pollutants released into the atmosphere. Among the regions in Azerbaijan, the highest quality of life and socio-economic development level is observed in Baku city. Therefore, Baku was not compared with other administrative districts of the Greater Caucasus region in this study. All data were obtained from the official statistical records of 2022 [1, 2, 3]. The Quality of Life Index (QLI), used as the criterion for evaluating quality of life, varies between 0.185 and 0.676 across 18 administrative districts of the Greater Caucasus region (Table 1).

Table 1

Quality of Life Index of Administrative Districts within the Greater Caucasus Region

№	Administrative districts	Demographic Index, I_d	Economic Index, I_e	Social Index, I_s	Environmental Index, I_{eko}	Quality Life Index, QLI	QLI$_{eco}$
1	Sumgait	0,530	0,754	0,773	0,352	0,676	0,595
2	Absheron	0,536	0,406	0,707	0,898	0,536	0,627
3	Khizi	0,491	0,136	0,321	0,843	0,278	0,419
4	Aghsu	0,452	0,331	0,174	0,520	0,297	0,353
5	Ismayilli	0,458	0,477	0,431	0,565	0,454	0,481
6	Gobustan	0,452	0,119	0,119	0,545	0,185	0,275
7	Shamakhi	0,452	0,499	0,18	0,541	0,351	0,399
8	Khachmaz	0,460	0,743	0,089	0,505	0,314	0,362
9	Guba	0,485	0,591	0,170	0,508	0,365	0,401
10	Gusar	0,524	0,395	0,268	0,549	0,381	0,423
11	Siyazan	0,506	0,308	0,362	0,707	0,384	0,465
12	Shabran	0,446	0,133	0,237	0,605	0,241	0,332
13	Balakan	0,503	0,474	0,301	0,504	0,415	0,437
14	Gakh	0,455	0,399	0,653	0,576	0,491	0,512
15	Gabala	0,472	0,329	0,553	0,576	0,444	0,442
16	Oghuz	0,536	0,296	0,401	0,626	0,397	0,489
17	Shaki	0,479	0,506	0,389	0,541	0,455	0,476
18	Zagatala	0,503	0,207	0,408	0,546	0,349	0,398

Assessment of Quality of Life	
Low	(0,100-0,399)
Medium	(0,400-0,599)
High	(0,600-0,899)
Very high	(0,900-1,0)

Source: The table was calculated by the applicant using the formula proposed, based on the statistical material "Regions of Azerbaijan" [1, 2, 3]

According to the Quality of Life Index by administrative districts of the Greater Caucasus region, the top five positions are held by Sumgayit, Absheron, Gakh, Sheki, and Ismayilli, respectively.

In terms of grouping, Sumgayit city falls into the high category; the administrative districts of Absheron, Ismayilli, Balakan, Gakh, Gabala, and Sheki are in the medium category; while the districts of Khizi, Agsu, Gobustan, Shamakhi, Khachmaz, Guba, Gusar, Siyazan, Shabran, Oguz, and Zagatala are categorized as low. No administrative district was classified under the very high category.

In terms of sub-indices, Absheron district ranked first in the demographic and environmental index, Sumgayit city ranked first in the economic index, and Gakh district ranked first in the social index.

The average value of the index is 0.390. The administrative districts are unevenly distributed according to the average value. Eight administrative districts have scores above the average, while ten administrative districts have scores below the average (Graph 3, a).

Considering the environmental index, Sumgayit city has moved from the high tier to the medium tier, Absheron district has moved from the medium tier to the high tier, and the districts of Khizi, Guba, Gusar, Siyazan, and Oguz have moved from the low tier to the medium tier. The positions of the other districts remain unchanged (Graph 3, b).

The Quality of Life Index has also been calculated for the economic regions of the Greater Caucasus, and in order to highlight interregional differences, the city of Baku was included in the compari-

a)

b)
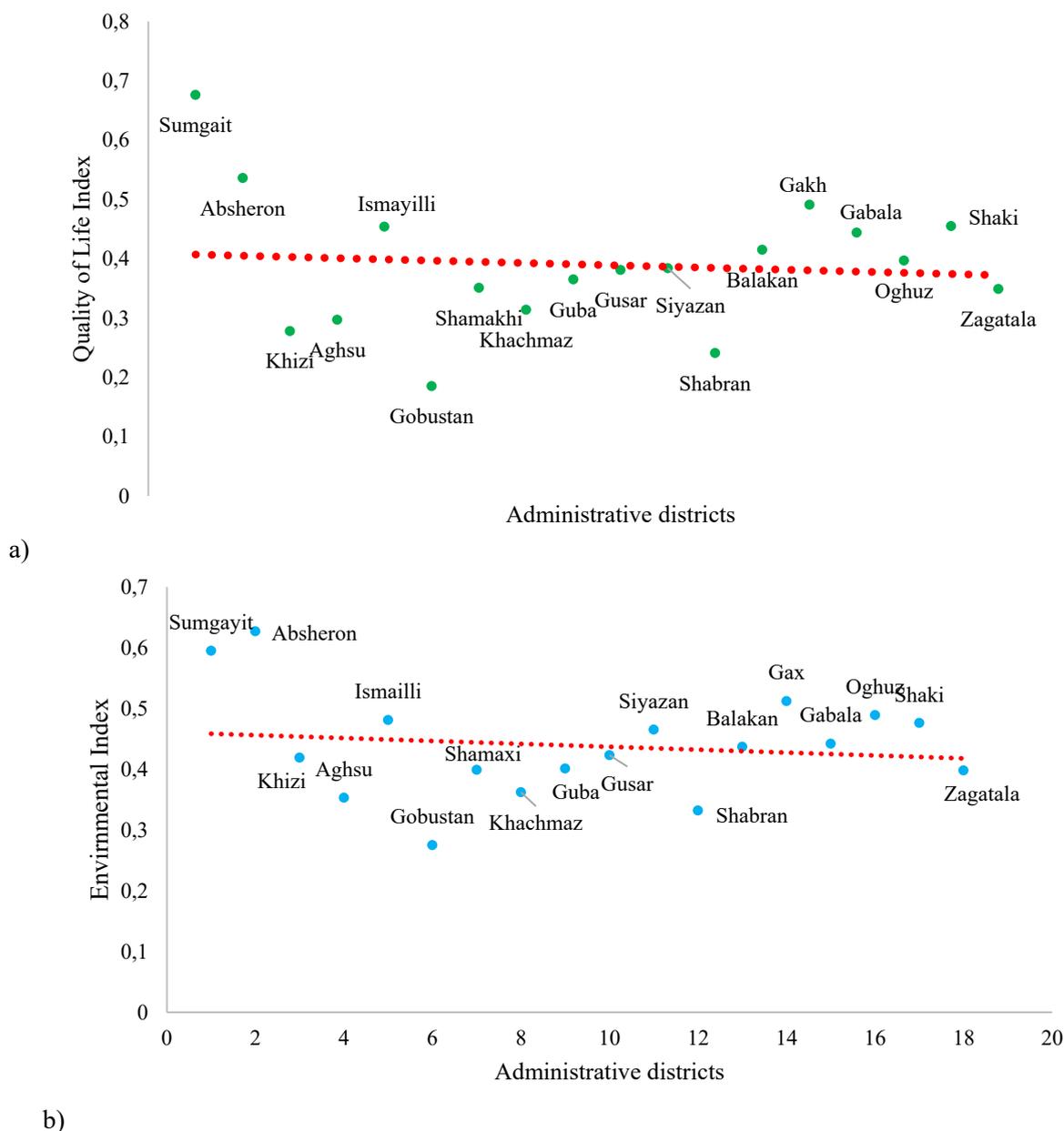
Graph 3. Distribution of administrative districts according to the Quality of Life Index (a) and Environmental Index (b) (*Source:* The charts were created by the applicant based on the data from Table 1)

son. In the Quality of Life Index ranking, Baku city holds the 1st place, and the Absheron-Khizi economic region ranks 2nd. Both are in the high tier. The Sheki-Zagatala and Guba-Khachmaz economic regions are in the medium tier, while in the overall ranking, the Mountainous Shirvan economic region ranks last, in the low tier (Figure 1).

According to the grouping, Baku city is in the high tier, the Absheron-Khizi and Sheki-Zagatala economic regions are in the medium tier, and the Guba-Khachmaz and Mountainous Shirvan economic regions are in the low tier. When comparing by individual indices, the economic regions rank in the medium tier for the demographic index, Baku is in the high tier for the economic index, while Ab-

sheron-Khizi and Guba-Khachmaz economic regions fall into the medium group. For the social index, Baku and Absheron-Khizi are in the high tier, Sheki-Zagatala is in the medium tier, and Guba-Khachmaz and Mountainous Shirvan are in the low tier.

Considering the environmental index, Baku city's Quality of Life Index slightly decreased, while the scores of other economic regions increased. Nevertheless, when accounting for the environmental index, Baku city remains the leader in the Quality of Life Index. The positions of the other economic regions have remained unchanged (Table 2).

Based on the provided data, there are various correlation relationships among the quality of life in-
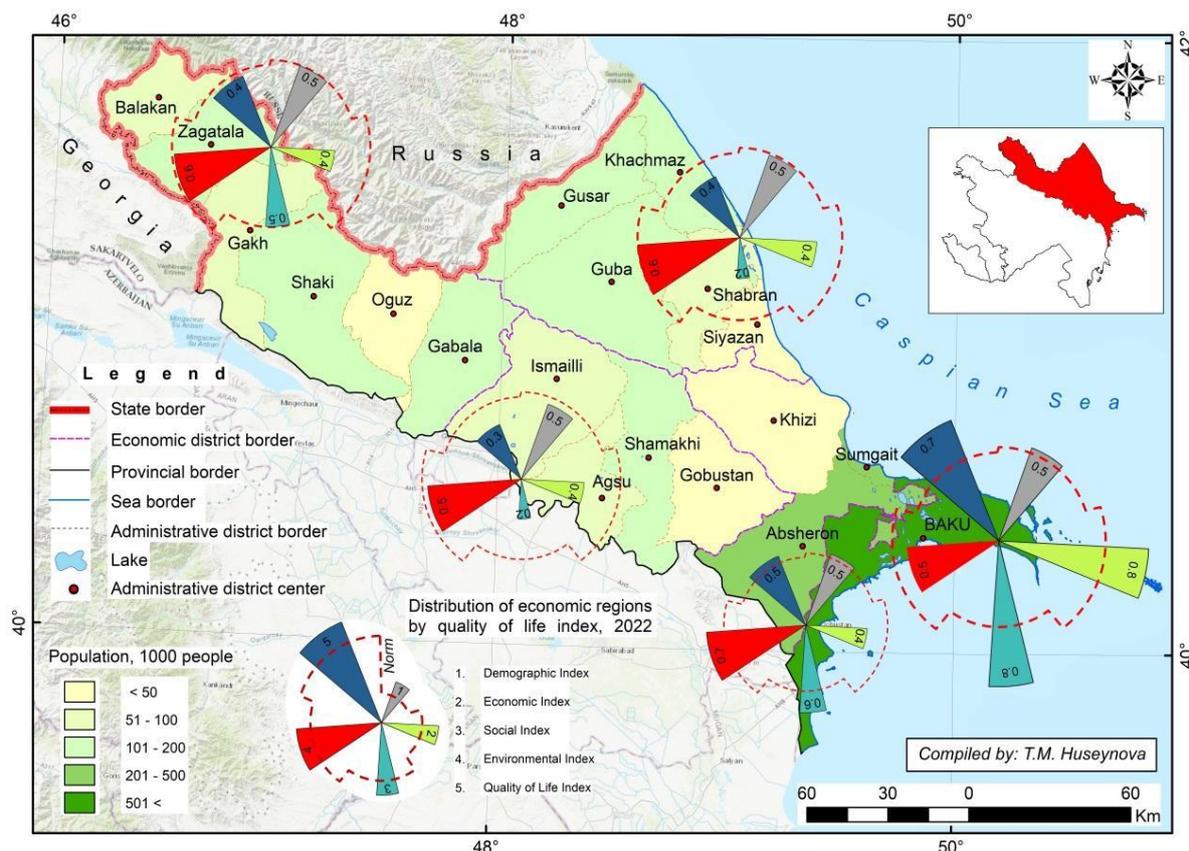
Fig. 1. Map of the distribution of the Quality of Life Index by economic regions in the Greater Caucasus

Table 2

Ranking of the economic regions within the Greater Caucasus
according to the Quality of Life Index (QLI) (2022)

Economic Regions	Demographic Index, I_d	Economic Index, I_e	Social Index, I_s	Environmental Index, I_{eco}	Quality Life Index, QLI	QLI_{eco}
Baku	0,521	0,808	0,769	0,492	0,686	0,638
Absheron-Khizi	0,519	0,432	0,600	0,698	0,512	0,559
Mountainous Shirvan	0,453	0,364	0,226	0,543	0,334	0,386
Guba-Khachmaz	0,484	0,433	0,225	0,575	0,362	0,415
Sheki-Zagatala	0,491	0,368	0,451	0,561	0,434	0,466
Region	0,494	0,575	0,454	0,574	0,466	0,493

Source: The table was calculated by the applicant using the proposed formula, based on the data from the statistical material "Regions of Azerbaijan" [2].

dicators. A positive correlation is observed between the Quality of Life Index and the demographic, economic, and social indices (r=0.576, r=0.706, r=0.860, respectively). This means that the increase in these indices leads to an improvement in the quality of life. In particular, there is a strong correlation between the social index and the quality of life (r=0.860), indicating that social factors significantly affect the quality of life.

Furthermore, a negative correlation (r=-0.517) is observed between the environmental and economic indices. Overall, there is a moderate linear rela-

tionship between the other three indices. As a result, the interrelationship of quality of life indicators not only emphasizes the importance of social factors but also highlights the contradictions between environmental and economic factors. Such analyses can be useful in decision-making processes aimed at improving the quality of life.

Considering the socio-economic, ecological, and demographic conditions of the Greater Caucasus region, there is a need to establish development models for regulating population settlement in economic and administrative regions and maintaining

demographic potential at the local level. The main goal of creating a regional quality of life model is to ensure the quantitative and qualitative growth of the population in line with the region's socio-economic development [12]. The quality of life of the population is a complex and multifaceted concept that encompasses demographic (longevity, natural increase), economic (per capita income, wages), social (education, healthcare, safety of individuals), and ecological conditions. Based on international expe-

rience, a regional quality of life model has been developed to improve the quality of life of the population in the Greater Caucasus and achieve the sustainable development of its regions. The preparation of this model has taken into account the demographic, social, economic, ecological, and governance conditions of the region. It is considered appropriate to use the following comprehensive indicator system to characterize the quality of life of the population (Figure 2).
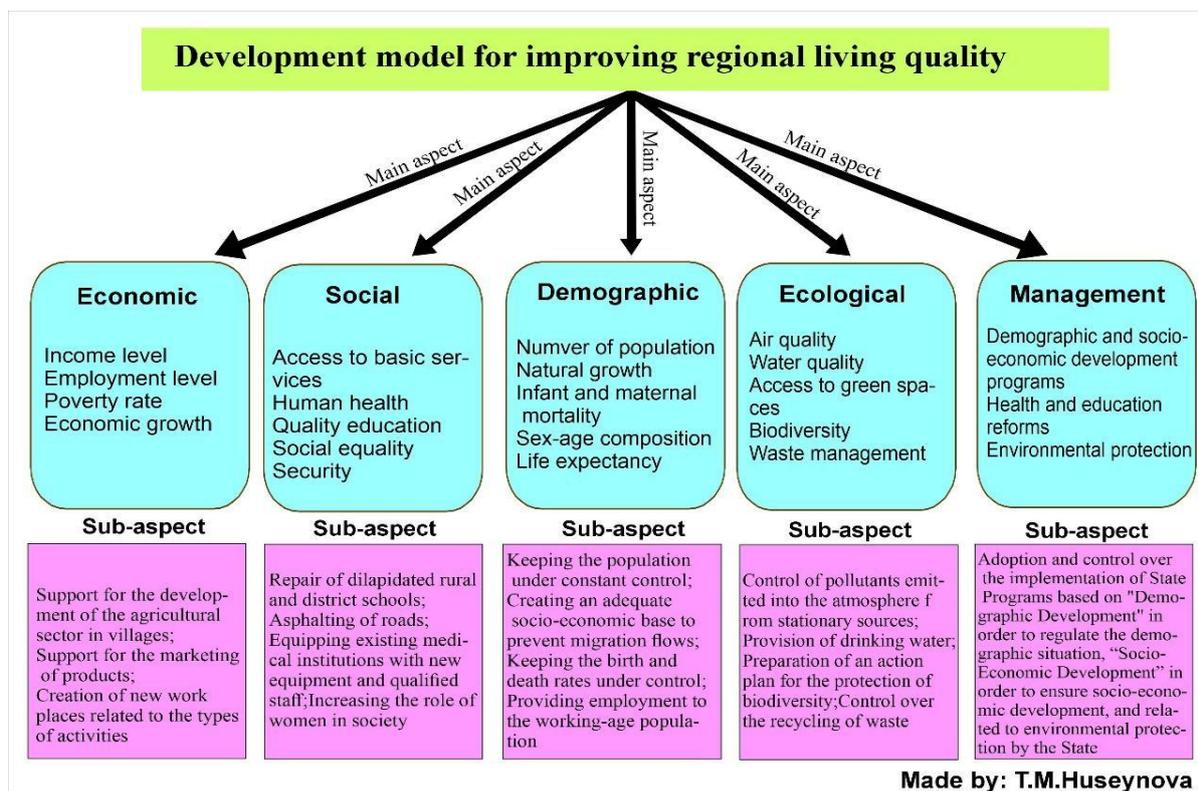

Fig. 2. Development model for improving regional quality of life

In the context of contemporary socio-economic development, the comprehensive study of human-environment relations and the organization of their mutual compatibility is considered one of the pressing issues of our time. The complexity of the physical-geographical conditions of the Greater Caucasus region, the diversity of its climate, the sharpness of its hypsometric features, and the dependence of the demographic factor on the environment condition the region's development [11]. Therefore, when determining the demographic development problems of quality of life in the region, the natural environment must be taken into account. Excessive exploitation, pollution, and the destruction of ecosystems lead to the globalization of local environmental problems. People in vast geographical areas suffer from such issues. Sometimes, we witness the disruption of traditional climate regimes, migration, demographic problems, and the spread of diseases [19]. Regional warming already shows its impacts on the ecological environment of the Greater Cauca-

sus. This, in turn, leads to changes in the population's living standards and incomes, and a decrease in the quality of life.

Thus, taking into account the diversity of orography, proximity to the Caspian Sea, and relations with neighboring countries, it is advisable to use the general indicators mentioned above when evaluating the quality of life in large and small settlements and in various economic regions of the Greater Caucasus. In determining the quality of life in this region, demographic criteria are given primary attention. The demographic factors in the region, in turn, depend on socio-economic indicators, the formation of the natural environment, and its resource potential.

Conclusions. Thus, the emergence of ecological problems has increased attention to the deeper study of their impact on the quality of life. Therefore, the evaluation of the quality of life should not be one-sided; alongside demographic, social, and economic factors, ecological and human factors must also be given priority.

1. In the Greater Caucasus region, a strong positive correlation has been observed between the Human Development Index and life expectancy, education level, and population income (with respective values of r=0.967, r=0.965, and r=0.992), while a negative correlation is noted with the amount of pollutants released into the atmosphere (r=-0.939). It has been determined that the environmental factor influences human development.

2. The indicators affecting the quality of life of the population have been indexed, and regional disparities have emerged in their interrelationships. A positive correlation exists between the Quality of Life Index and the demographic, economic, and social indices (with respective values of r=0.576, r=0.706, and r=0.860). However, the correlation between the ecological and economic indices is weak, and the linear relationship is negative (r=-0.517).

3. The average value of the index is 0.390. Eight administrative districts have scores above the average, while ten districts have scores below the average. Sumgayit city is in the high tier, while the administrative districts of Absheron, Ismayilli, Balakan, Gakh, Gabala, and Sheki are in the medium tier. The administrative districts of Khizi, Agsu, Gobustan, Shamakhi, Khachmaz, Guba, Gusar, Siyazan, Shabran, Oguz, and Zagatala are in the low tier. No administrative district is in the very high tier.

During the analysis of the development model to improve regional quality of life, it was found that, to prevent the migration of the population to cities, it is crucial to develop the agricultural sector in rural areas, provide high-quality social, cultural, and household services, offer education and vocational training in various sectors for the local workforce, create jobs in line with modern professions and specialties, eliminate income disparities, increase state support for mothers and children, provide financial assistance to large families, improve environmental quality, and, as a result, ensure the preservation of demographic potential in local areas.

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Оцінка якості життя населення в Азербайджані (на прикладі Великого Кавказу)

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Дослідження проводилося з метою оцінки якості життя населення в адміністративних районах регіону Великого Кавказу, виявлення регіональних диспропорцій та пропозиції рішень для їх усунення. Вивчення змін показників якості життя населення в регіоні Великого Кавказу, вивчення соціально-економічних умов та демографічних проблем населення, а також зусилля щодо їх вирішення проводилися з використанням системно-структурного, порівняльного аналізу, географічного моделювання та картографічних методів (програмне забезпечення ArcGIS) для перенесення зібраних даних на карти. Під час математико-статистичних розрахунків використовувався MS Excel та його інструменти обробки, такі як Xlstat. У дослідженні, під час оцінки якості життя населення, показники індексувалися з урахуванням демографічних, економічних, соціальних та екологічних факторів. У цьому дослідженні автор пропонує розрахунок індексу якості життя (ІЯЖ) для вимірювання якості життя населення або загального рівня розвитку регіонів. Для оцінки якості життя населення було визначено чотири групи показників: демографічні, економічні, соціальні та екологічні. У дослідженні автор пропонує розрахунок індексу якості життя (ІЯЖ) для вимірювання загального рівня розвитку населення або регіонів. Індекс якості життя розраховується як середнє геометричне чотирьох індексів (демографічного, економічного, соціального та екологічного). Порівняльна оцінка якості життя за допомогою індексації була проведена вперше в регіоні. Під час розрахунку індексу враховуються різні показники. Кожен з цих показників має певну вагу, яка змінюється залежно від характеристик показників. Головною метою індексації є стандартизація показників для порівняння регіонів. Аналіз показав, що ваги індексів є змінними. Ця мінливість залежить від географічного розташування, площі, рівня соціально-економічного розвитку, чисельності населення та структури розселення регіонів. Індекс якості життя був нормалізований до діапазону від 0 до 1, де значення «1» вказує на регіон з найвищою якістю життя порівняно з іншими, а «0» – на регіон з найнижчою. Значення індексу були згруповані таким чином: низький (0,100–0,399), середній (0,400–0,599), високий (0,600–0,899) та дуже високий (0,900–1,000).

Ключові слова: *регіон Великого Кавказу, якість життя населення, індекс якості життя, демографічні показники, соціально-економічні показники, екологічні показники, регіональні диспропорції.*