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THE CURRENT SITUATION OF SOCIAL INFRASTRUCTURE AND ITS TERRITORIAL PLANNING IN THE SHAKI DISTRICT (AZERBAIJAN)

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Abstract

Aim. The purpose of the paper is to study the issues of social infrastructure areas and territorial planning, the implementation level of adopted State programs, and the current state of water, sewerage, electricity, heating, transport, road, and service spheres of the communal areas of the population.

Methodology. The key research method is the methodology for determining of the territorial development index coefficient, comparative analysis with other regions and historical analyses, and mapping all infrastructures in the region.

Results. Research shows that although the State programs and measures are implemented in the Shaki region, the development of social infrastructure is not at the desired level. However, the social infrastructure and its separate areas of water supply, gas supply, and sewage systems in the researched area and villages are not comprehensively provided.

The regional development index reveals that Shaki district ranks 4th in Shaki Zagatala economic region. According to the conducted research, the volume of the measures taken in the direction of the development of the region is mostly concentrated in Gabala, Zagatala, and Gakh regions in recent times. As a result, it was determined that the Shaki region's function of preventing migration in the region, as well as its role as an economic center, has decreased, and the region has transitioned from monocentric to polycentricity.

Research implications. The results of the study show that mapping the sites of social places and infrastructure using GIS technologies is important in developing social strategy plans and databases as a significant factor in the socio-economic development of the Shaki region.

Keywords: social infrastructure, planning, State Programs, territorial development index, social welfare, Shaki district, GIS

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СОВРЕМЕННОЕ СОСТОЯНИЕ СОЦИАЛЬНОЙ ИНФРАСТРУКТУРЫ И ЕЁ ТЕРРИТОРИАЛЬНАЯ ПЛАНИРОВКА В ШЕКИНСКОМ РАЙОНЕ (АЗЕРБАЙДЖАН)

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Аннотация

Цель. Изучение вопросов социальной инфраструктуры территорий и территориального планирования, уровня реализации принятых государственных программ, современного состояния водоснабжения, канализации, электроснабжения, теплоснабжения, транспорта, дорожно-транспортной сферы и сферы обслуживания коммунальных территорий населения.

Процедура и методы. Ключевым методом исследования является определение коэффициента индекса развития территории, ежегодный сравнительный анализ с другими регионами и картирование всей инфраструктуры региона.

Результаты. Исследования показывают, что, хотя в Шекинском районе реализуются государственные программы и меры, развитие социальной инфраструктуры находится не на должном уровне. При этом социальная инфраструктура и её отдельные участки водопровода, газоснабжения и канализации в исследуемом районе и селах обеспечены не в полной мере. Индекс регионального развития показывает, что Шекинский район занимает 4 место в Шеки-Загатальском экономическом районе. Согласно проведённому исследованию объём мер, предпринятых в направлении развития региона в последнее время, в основном сконцентрирован в Габалинском, Загатальском и Гахском районах. Анализ показал, что функция Шекинского района по предотвращению миграции в регионе, а также его роль как экономического центра снизились, и регион перешёл от моноцентризма к полицентризму.

Теоретическая и/или практическая значимость. Результаты исследования показывают, что картографирование объектов социальных мест и инфраструктуры с использованием ГИС-технологий имеет важное значение при разработке планов социальной стратегии и базы данных как важного фактора социально-экономического развития Шекинского района.

Ключевые слова: социальная инфраструктура, планирование, госпрограммы, индекс территориального развития, социальное благополучие, Шекинский район, ГИС

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Introduction

Every country has to ensure the social well-being of its regions along with

sustainable social and economic development. This is related to various investments in that region and the population

living there, and the implementation of some social projects. However, the main issue is the improvement of the standard of living of the population and the level of services, in return for which they are available to everyone [6]. Infrastructure is defined as the productive capital structures that form the basis of the economy and society and enable the achievement of economic and social goals in a given period [13]. As a result, the areas of economic infrastructure and social infrastructure were created. Although, both economic and social infrastructures have significant social impacts in practical terms on individuals, communities, and the general public at large, the distinction between the two infrastructures based on their social impact is ambiguous and difficult to define [5].

However, there are no concrete methods for assessing the impact of social additional costs on the dynamics of economic growth [3]. The activity of social infrastructure is considered as a set of areas aimed at satisfying the personal needs of the population, ensuring their life activity, intellectual development, and high social-political activity [1]. In *Palaces for the People*, the sociologist Eric Klinenberg [7] makes the argument that a whole range of physical and institutional infrastructures are crucial for the development and maintenance of social connections. This is an argument for social infrastructure.

Infrastructure has emerged as a central focus in social and urban theory [4]. Within geography, much of this work owes a debt to Latham & Layton [10], work on the physical infrastructures of water, power, transportation, and telecommunications provision. They argue that changing forms of infrastructural provision have created an increasingly splintered landscape where some groups

are systematically excluded. Here, physical infrastructure represents “congealed social interests” [8].

The article analyzed the current state of social infrastructure areas, including cultural education areas, healthcare and tourism facilities, and communication and service areas in the research region. Also, it is considered to study the level of implementation of the adopted State programs and their future perspectives. Preparation of a social infrastructure development strategy, effective territorial organization of social infrastructure, settlement of the population, planning, placement, and management of farm areas, and conditions covering the material basis of the realization of social programs for the purpose of raising the standard of living of the society constitutes the relevance of the research in Shaki district. A wide network of social infrastructure should be created in the research area. At present, infrastructure areas in the region consist of housing and communal services, household services, cultural and educational institutions, public catering, trade services, transport and communication, healthcare, and the tourism sphere.

Study Area and State Programs

The total area of Shaki district, located in the northwest of our republic, is 2488 km² and it is the second largest district of Azerbaijan after Guba district. The Shaki district is surrounded by the Dagestan Republic of the Russian Federation from the north, Oghuz from the east, Yevlakh from the south, and Gakh from the west (Fig. 1). The total population of the district is 189,1 thousand people¹. If the popula-

¹ ARSSC. Demographic Indicators of Azerbaijan, 2021. 66 p.

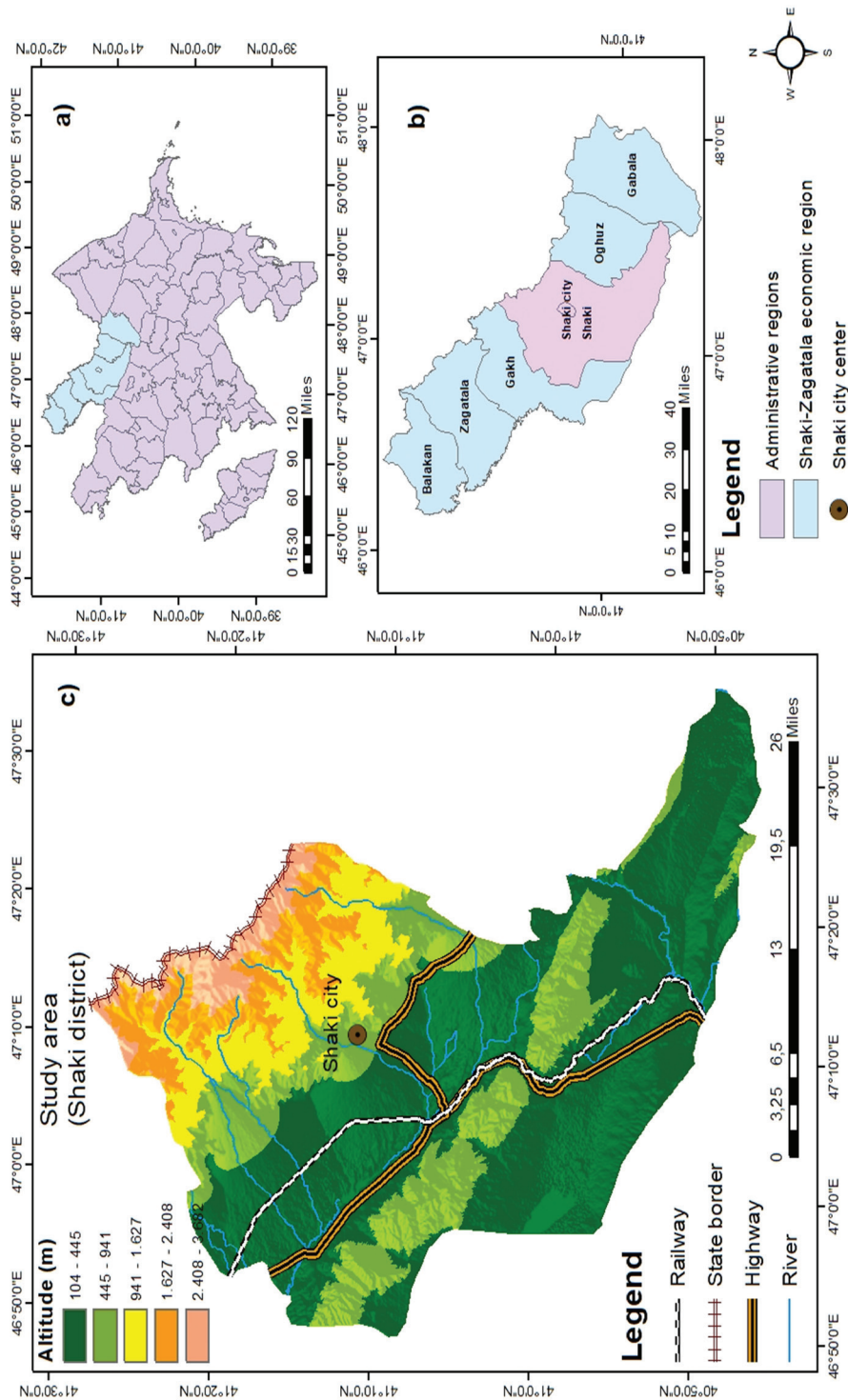


Fig. 1 / Рис. 1. Study area: a) Administrative regions of Azerbaijan Republic, b) Shaki-Zagatala economic region, c) Shaki district / Территория исследования: а) Административные районы Азербайджанской Республики, б) Шеки-Закагальский экономический район, с) Шекинский район

tion was 170,7 thousand in 2009, in 2020 this number increased by 10,7%. Although Shaki district is in the 1st place in terms of population in the region, it lags behind Balakan and Zagatala regions in terms of population density, and the density per sq. 78 people per km. It covers 30% of the total population in the Shaki-Zagatala economic region. The total population of the Shaki city is 90 thousand people¹.

The level of urbanization is 47,6% [2] and the majority of the population lives in the countryside [12]. The region in-

cludes 2 urban settlements and 68 villages [11]. The northern and northeastern part of the administrative region is included in the forested, subalpine, and alpine grassy southern slopes of the Main Caucasus range, the central part is in the steppe, in some places in the forested Ganikh-Ayrichay valley, and the southern and southeastern part is mainly in the desert landscape of Ajinokhur foothills and steppe plains. The height of the area ranges from 107 to 3 686 m (Fig. 2) and is mostly surrounded by mountains

In this framework, a number of state programs related to the social and eco-

¹ ARSSC. Regions of Azerbaijan. Baku, 2022.

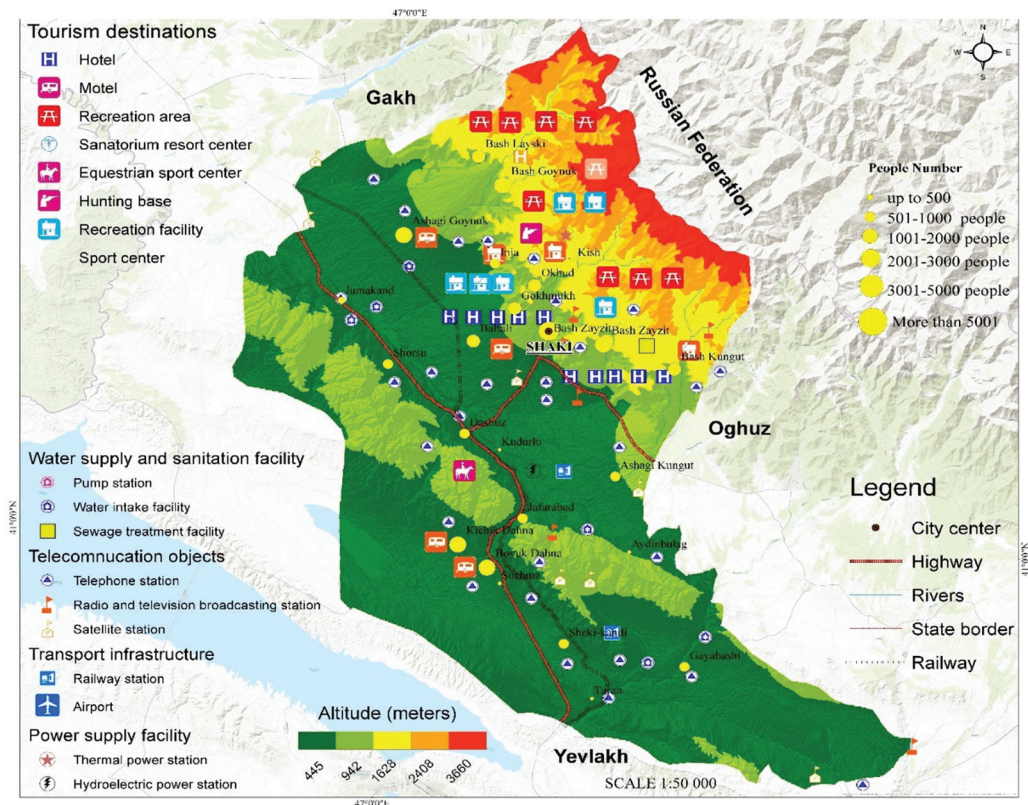


Fig. 2 / Рис. 2. Current social infrastructure condition of Shaki district except for medical infrastructure / Текущее состояние социальной инфраструктуры Шекинского района кроме медицинской инфраструктуры

Source: Prepared based on statistical data by the author

conomic development of regions have been implemented in our republic, and new ones are currently being implemented. Investing in the region promotes the development of social infrastructure, which allows for ensuring the social and economic rights of the population, to maintain social services, including health care, education, culture, and other social fields. Within the framework of the State Program for Social Economic Development of Regions (2019–2023)¹, several measures have been taken to create social infrastructure areas and develop existing areas in Shaki. These mainly include the creation of new service areas and the expansion of existing facilities with increased production. A number of projects have been implemented in the direction of the construction of the road network and its repair. The construction of the Garamaryam – Ismayilli-Shaki (134 km) – Shirinbulag highway has been completed in the region. It is planned to reconstruct Hachi, Babaratma-Garadağlı Gudula-Dashuz highway as well. The length of the project is 28,1 km, and the cost is 12 000 thousand manats.

One of the important areas in the communal economy is the supply of electricity and gas to the population. Works are being continued in the field of providing the population with electricity. Within this framework, 1 – 110 kV substation and 3 – 35 kV substations were rebuilt in 2020. In order to meet the heat and electricity demands of the population, a number of measures have been taken to improve the gas supply in the region, including major repairs of existing pipelines and new lines. Thus, 13,28 km of new gas pipelines were built in the region, 8,27 km of gas lines were overhauled, and 1 new residential

area was supplied with gas. Previously, all these were met by cutting down forest areas, and as a result, forest resources were reduced. However, despite the work done in electricity and gas supply, there are still interruptions in the level of provision for the population, especially in rural areas.

Providing the population with water, sewerage, and communication are the main indicators of communal services. Local springs and artesian basins play a key role in the water supply of the population in the Shaki region. In order to create artesian basins in the region, drilling works in the wells in the villages of I Bilajik, Bideyiz, Aliyar, Baş Goynuk, Aydınbulag, and Ibrahim have been completed. In the field of improving drinking water supply and sewage systems, an 18,31 km long water line, 4,66 km drinking water house connections, 16,89 km sewage line, and 11 km long sewage house connection were built during 12 months in 2020. In the villages of the region, the drinking water problem and the construction of lines still remain. Although the issue of continuing the reconstruction of the water supply and sewerage system of the city of Shaki is mentioned in each of the adopted State programs, as a result, it has not been completed at the present time.

The main reason for this is that the final implementation plan for the area is updated in every program, the work is not performed in terms of quality and quantity, and the principle of consistency according to the plan is not maintained. The centralized sewage system, boiler houses, and heating systems belonging to the communal economy in the region are non-existent.

A number of necessary measures were taken to protect the health of the popula-

¹ ARSSC. Socio-economic development of regions. The statistical compilation, 2021. 728 p.

tion and improve the quality of medical services. The construction of the Shaki City Psychiatric Hospital in the Shaki District was completed and put into use within the framework of the Program for the Improvement of Social Infrastructure. Also, the healthcare facilities in the region that needed to be repaired were restored. Thus, a village doctor's station has been established at the base of Boyuk Dahna, Kichik Dahna, Ashaghi Goynuk village hospitals, and Turan settlement hospital.

Social infrastructure and its territorial planning in the Shaki district

Social infrastructure is one of the important elements of economic fields and serves to satisfy the social and moral needs of the population.

The number of doctors in hospitals began to decrease over the past 10 years in the region. The number of 346 people in 2015 decreased to 323 people in 2020

(Table 1). This means that there is one doctor for every 585 people in the region. The number of doctors per thousand people has decreased in 5 years. In 2015, this indicator was around 19 people, but in 2020, this number decreased to 17 people. The rate of decline has gradually decreased over the indicated time period.

The number of hospitals continued to decline in the same way. In 2015, the number of hospitals was 8, but in 2020, it decreased to 3. The main reason for this is that hospital-type polyclinics are concentrated in a single area and operate in a complex manner. Although there is a decrease in the total number of hospitals, there is an increase in the number of beds. The number of beds, which was 672 in 2015, increased by 52 to 724 in 2020. An increase in the number of medical workers working in healthcare has been recorded. Between 2015 and 2020, there is an increasing and decreasing trend in the number of employees.

Table 1 / Таблица 1

Main indicators of health services / Основные показатели здравоохранения

| Name | 2015 | 2020 |
|---|-------------|-------------|
| The number of doctors, people | 346 | 323 |
| The number of secondary medical workers, people | 1142 | 1179 |
| Number of hospitals | 8 | 3 |
| The number of hospital beds | 672 | 724 |
| The number of treatment facilities providing ambulatory polyclinic assistance to the population | 22 | 20 |
| Capacity of outpatient polyclinic institutions (number of arrivals in the queue) | 2274 | 1706 |
| Per 10,000 of the population | | |
| Doctors | 18.9 | 17.1 |
| Paramedics | 62.5 | 62.3 |
| Hospital beds | 36.8 | 38.3 |
| (number of arrivals in the queue) | 124.5 | 90.2 |

Source: ARSSC. Socio-economic development of regions. The statistical compilation, 2021. 728 p.

There are a number of educational institutions in the Shaki region, including the Shaki branch of Azerbaijan State Pedagogical University, 2 colleges (Shaki State Regional College and Medical College), Shaki State Vocational Training Centers, 62 pre-school and 92 general education, 61 libraries, 53 cultural development clubs, and 8 museums¹.

A number of measures have been taken in the direction of improving telecommunication services. Thus, the number of post offices, which was equal to 36 in 2015, increased to 38 in 2021 and the number of ATs has increased from 38 to 40, respectively². The volume of telecommunication services was 1670.1 thousand manats in 2015, and in 2021 it increased by 33% to 2483,4 thousand manats.

The public transport system is built to cover all surrounding areas of the district. However, since the vehicles used are mainly old minibusses and the lack of other means of transport (train, subway, and trolleybus) is one of the main shortcomings of public transport.

Shaki district is one of the main tourist centers of the country. The main tourist centers of the region are historical and cultural monuments (Shaki Khan Palace complex included in the UNESCO Heritage, Albanian churches), equestrian and hunting centers, the Olympic sports center, and the Khan steppe. Along with all this, it is considered one of the main tourist areas in the natural landscape and camping areas.

Table 2 / Таблица 2

Regional development index of economic regions/ Индекс регионального развития экономических районов

| Economic regions | The area is a thd sq. km | Population, thd people | GDP million manats | Regional Development Index |
|-----------------------------|--------------------------|------------------------|--------------------|----------------------------|
| Baku | 2,14 | 2303,1 | 70443,7 | 100,3 |
| Nakhchivan Ottoman Republic | 5,50 | 463,0 | 3814,6 | 7,6 |
| Absheron-Khizi | 3,73 | 579,9 | 6153,0 | 13,2 |
| Mauntain Shirvan | 6,13 | 326,8 | 967,6 | 2,2 |
| Ganja-Dashkasan | 5,27 | 612,1 | 2282,4 | 4,0 |
| Garabagh | 8,99 | 907,9 | 2816,8 | 3,1 |
| Gazakh-Tovuz | 7,03 | 690,6 | 2412,2 | 3,5 |
| Guba-Xachmaz | 6,96 | 561,8 | 2140,4 | 3,4 |
| Lankaran-Astara | 6,07 | 959,4 | 1989,7 | 2,6 |
| Markazi Aran | 6,69 | 743,2 | 2453,3 | 3,5 |
| Mil-Mughan | 5,67 | 526,4 | 1952,5 | 3,6 |
| Shaki-Zagatala | 8,84 | 632,9 | 1801,7 | 2,4 |
| Eastern Zangazur | 7,47 | 345,0 | 964,2 | 1,9 |
| Shirvan-Salyan | 6,08 | 504,3 | 2166,6 | 3,9 |

Source: Prepared based on the statistical report ARSSC. Regions of Azerbaijan. Baku (2022) using the Lopatnikov method by author

¹ ARSSC. Socio-economic development of regions. The statistical compilation, 2021. 728 p.

² In the same place.

For the first time, the indicators of the index of territorial development were calculated and fully analyzed for the Shaki-Zagatala economic region and the administrative units by using D. L. Lopatnikov's [9] index of regional economic development (Table 2).

The following mathematical dependence of D. L. Lopatnikov was used to calculate the index:

$$I = 0.1 * \sqrt{\frac{V^2}{N * S}}$$

Here:

V – the value of the gross domestic product of the region mln manat;

N – the population of the region is one thousand people;

S – the total area of the region is thousand km².

The analysis carried out (Table 3) shows that despite the existing social infrastructure development and the measures implemented within the framework of the State programs, the territorial develop-

ment index of the Shaki district is equal to 2,5. This indicator lags behind several districts in the region, including Zagatala, Gabala, and Balakan. However, the indicators are relative in nature and vary accordingly according to the population of the region and the total value of GDP.

The highest index in the Shaki Zagatala economic region belongs to the Gabala district, but when a general analysis is carried out for the region, the territorial development index is generally equal to 2,5, which is quite low compared to other regions and shares the last ones (Table 2). The analysis indicators of the territorial development index show that the social infrastructure areas of the region are not developed at the required level, which is also considered one of the main factors that slow down the use of the potential of other areas in the Shaki district.

As a result of research the development and current state of social infrastructure in the Sheki region are not at the required level. The main example of this can be seen more clearly in the sphere of communal services. Thus, the provision of heating,

Table 3 / Таблица 3

Territorial development index for Shaki Zagatala economic district / Индекс территориального развития Шеки-Загаталяского экономического района

| Name | The area is a thd sq. km | Population, thd people | GDP million manats | Territorial Development Index |
|--------------------------------|--------------------------|------------------------|--------------------|-------------------------------|
| Shaki-Zagatala economic region | 8,84 | 630,4 | 1970,1 | 2,4 |
| Balakan | 0,94 | 99,6 | 297,4 | 3,1 |
| Gakh | 1,49 | 57,5 | 140,4 | 1,5 |
| Gabala | 1,55 | 108,7 | 448,1 | 3,5 |
| Oghuz | 1,08 | 45,0 | 111,9 | 1,6 |
| Shaki | 2,43 | 189,1 | 541,4 | 2,5 |
| Zagatala | 1,35 | 130,5 | 430,9 | 3,2 |

Source: Prepared based on statistical data by the author

drinking water supply, and sewage services to the population is either very low or cannot be fully provided. Although all this is included in the State programs adopted every five years.

At the same time, there are some deficiencies in the service sector, and although the population can use these services, the use rate is quite low. For example, we can show services that are used online. The population of the district knows that this level of service exists, but they are not interested in using it. The reason for this is summarized as follows: *Lack of trust* in online government services: People are interested in resolving the issue by going to that government institution to benefit from the service; *Ease of use*: Although the service seems easy to use, it takes a long time to take into account and solve complaints in case of problems; *Ignorance*: In most cases, people do not know about the existence of such services

Conclusion

Research shows that although the State programs and measures are implemented in the Shaki region, social infrastructure development is not at the desired level. However, the social infrastructure and its separate areas of water supply, gas supply, and sewage systems in the researched area and villages are not comprehensively provided.

The regional development index reveals that Shaki district ranks 4th in Shaki Zagatala economic region. According to the conducted research, the volume of the measures taken in the direction of the region's development is mostly concentrated in recent times in Gabala, Zagatala, and Gakh regions. As a result, it was determined that the Shaki region's function of preventing migration in the region, as well as its role as an economic center, has decreased, and the region has transitioned from monocentric to polycentric.

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