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ABSTRACT

Of the dissertation for the degree of Doctor of Philosophy

**REGIONAL CHARACTERISTICS AND DEVELOPMENT
MODEL OF SOCIAL INFRASTRUCTURE PROVISION OF
POPULATION IN MOUNTAINOUS AREAS
(On the example of Daglig Shirvan economic - geographical
region).**

Speciality: 5401.01-Economic geography

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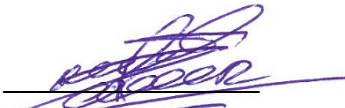
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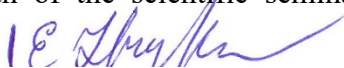
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GENERAL CHARACTERISTIC OF THE WORK

The degree of urgency of the subject and workmanship. In the modern era of scientific and technological progress, the productive forces require fundamental changes in the sectoral structure of the economy and in public life. The rapid development of the country's socio-economic situation and material production makes it necessary to provide social infrastructure as a service sector. In this regard, the quality of services provided in the field of social infrastructure is being improved to improve the living conditions of the population.

Regardless of the natural and geographical conditions, the provision of social infrastructure is one of the main factors in the settlement of the population. The reasons for the migration of the population from mountainous areas are: unfavorable relief conditions, the location of some settlements in the active landslide and geosynclinal zone, lack of jobs, poor development of social infrastructure, etc. aiddir. Socio-economic measures taken to improve people's living standards have led to an increase in their incomes, education, science, health, housing and communal services, energy and heating, trade, transport, communications and information and communication technologies (ICT), catering, cultural and other services accelerates the rise of spiritual spheres.

The state programs for socio-economic development of the regions of the Republic of Azerbaijan give a wide place to the development of social infrastructure in the regions. For this reason, the territorial organization and development of social infrastructure should be regulated in accordance with the natural conditions and economic and geographical capabilities of the regions. Taking into account local physical, economic and social geographical factors, the development of a promising development model that can lead to significant socio-economic revival in the service sector in mountainous areas is important for the organization of territory in the field of social infrastructure.

Analyzing the regional features of the provision of the population with social infrastructure in the studied economic-geographical region of the Mountainous Shirvan region, the study of ways to solve the geographical problems of the area and the development of a development model in accordance with the results are of great importance.

One of the scientists who conducted research on social infrastructure and the economic-geographical region of Mountainous Shirvan-A.A.Nadirov, B.A. Budaqov, Ş.Y. Goychayli, V.A. Afandiyev, T.G. Hasanov, G.R. Agakishiyeva, Z.N. Eminov, A.G. Alirzayev, N.H.Ayyubov, F.P. Rahmanov, V.T. Novruzov, A.A.Quliyeva, N.A. Pashayev, M.H.Zeynalov, İ.N.Şuklin, S.K.Mordovin, V.M. Jerebin, İ.S.Pakulin, S.A.Kovalev.

Objectives and tasks of the research. The main purpose of the study is to study the level of social infrastructure in mountainous settlements and its regional features in the example of the economic-geographical region of Shirvan, to study the development and territorial organization of social infrastructure, to identify existing problems in this area and identify solutions. is to develop a perspective development model.

In order to achieve this goal, the following tasks are to be solved:

- to determine the effects of natural and geographical conditions on the territorial organization of social infrastructure;

- to study the modern level of development of social infrastructure in comparison with economic-geographical regions;

- to determine the differences in the territorial organization and level of development of social infrastructure in settlements in mountainous areas (between cities, settlements, rural settlements and administrative districts);

- to determine the role of state programs of socio-economic development of the regions in the development of social infrastructure and to identify opportunities to increase the level of social infrastructure in the economic-geographical region of Shirvan;

- To develop a development model for improving the sectoral and territorial organization of providing the population with social

infrastructure in the mountainous Shirvan economic-geographical region.

Research methods. Historical-geographical approach, comparative analysis, field research, statistical, cartographic, GIS, sociological survey, etc. in writing the dissertation. methods were used.

The main provisions of the defense:

1. Assessment of development features of social infrastructure areas in mountainous areas related to natural conditions and economic-geographical factors on the example of mountainous Shirvan economic-geographical region;

2. Demographic potential of Mountainous Shirvan economic-geographical region, modern level of development of social infrastructure, field and territorial structure, existing problems and their solutions;

3. Development of social infrastructure and improvement of territorial organization and development model in mountainous Shirvan economic-geographical region.

Scientific novelty of the research:

- Due to the natural and geographical conditions, the small size of social infrastructure within the region, its low level of development and scattered territorial organization were assessed;

- In order to improve the provision of the population with social infrastructure in the regional context, the territorial organization of the construction of social facilities meeting modern standards was assessed, the investment climate acting as a provider of development in this area was studied;

- Socio-economic living conditions and employment of the population were calculated on the basis of indicators of natural growth and migration balance, the causes of internal and external migration were investigated, the damage to social infrastructure was assessed;

- The experience of countries that differ in the provision of social infrastructure in the world was studied and the possibilities of providing employment in the social sphere, organization of quality services, application of modern social infrastructure facilities were

assessed and "Social Infrastructure Development Model" was developed;

- Problems in the field of social infrastructure in mountain villages were studied, pilot areas were selected for their elimination and proposals were given.

Theoretical and practical significance of the research. The theoretical basis of the research consists of scientific works, methodical instructions of the scientists who conducted research in this field, as well as the results of the author's research work.

Regional features of social infrastructure development in the mountainous Shirvan economic-geographical region are of great scientific importance in state programs, strategic road maps, as well as future work on social infrastructure, taking into account the effective territorial organization of social infrastructure in mountainous areas and the requirements of a market economy.

Approbation and application. Research results obtained during the writing of the dissertation I International Scientific Conference of Young Scientists and Specialists: "The role of a multidisciplinary approach in solving current problems of fundamental and applied sciences (earth, engineering and chemistry)", October 15-16, 2014, Baku, Azerbaijan; V Republican Scientific Conference "The role of museums in the study of the history of Azerbaijan", dedicated to the 130th anniversary of the first professional archaeologist and museologist of Azerbaijan Davud bey Sharifov, April 7, 2015, Baku, Azerbaijan; Republican conference, September 13-14, 2016, Sheki, Azerbaijan; Materials of the Republican scientific conference on "Modern problems of geography", October 24-25, 2019, Sumgayit, Azerbaijan; Reported at the XI International Scientific Conference "Improvement of the system of training of personnel in higher education: innovation and sustainability", November 14, 2019, Grodno, Belarus at the national and international conferences.

9 scientific articles and 2 theses on the topic of research work were published.

The recommendations and suggestions reflected in the content of the dissertation can be used in the territorial organization of social

infrastructure in mountainous regions, in the development of state programs for economic and geographical development of the region. Analyzes conducted in the dissertation, identified trends, maps, etc. in the preparation of the General Plan of administrative districts, socio-economic development program, Transport, Communications and High Technologies; Education, Youth and Sports; Labor and Social Protection; It can be used in the Ministries of Economy, Culture, Tourism Agency, research institutions.

Name of the organization where the dissertation work is performed. The dissertation work was carried out in the "Demography and Population Geography" department of the Institute of Geography named after academician H.A. Aliyev of the Azerbaijan National Academy of Sciences.

Volume, structure and main content of the dissertation. The dissertation consists of an introduction, 4 chapters, a conclusion and a list of references. The volume of the work is 145 pages. The work consists of 2 pictures, 3 maps, 10 graphs, 22 tables, 146 bibliography. Introduction - 5 pages, Chapter I - 15 pages, Chapter II - 26 pages, Chapter III - 39 pages, Chapter IV - 41 pages, result - 2 pages, bibliography - 12 pages, appendix - 3 pages. It consists of 213752 characters without tables, graphs, pictures and bibliography.

MAIN CONTENT OF THE STUDY

The introduction gives the topicality and degree of development of the topic, goals and objectives, methods, main provisions of the defense, scientific innovations, theoretical and practical significance of the research, approbation and application.

The first chapter of the dissertation is devoted to "**The importance of the study of social infrastructure and the role of natural and geographical conditions in the territorial organization of social infrastructure.**" This chapter explores economic-geographical research of infrastructure areas, the concept of social infrastructure and its theoretical and methodological bases, factors determining its place and development in the economic

system, historical and geographical features of social infrastructure development and territorial organization in the research region.

Mountainous Shirvan economic-geographical region covers an area of 6.06 thousand km² (7% of the country) and includes Agsu, Ismayilli, Shamakhi and Gobustan administrative districts. There are 4 cities, 4 administrative-territorial units, 8 settlements, 106 rural administrative-territorial districts and 275 rural settlements in the economic-geographical region.

The current state of science and education, culture and education, health, housing and communal services, energy and heating, trade, public catering and tourism, transport, communications and ICT, problems in territorial organization and solutions were studied in Mountainous Shirvan.

A.A.Nadirov, B.A. Budaqov, Ş.Y. Goychayli, V.A. Afandiyev, T.G. Hasanov, G.R. Agakishiyeva, Z.N. Eminov, A.G. Alirzayev, N.H.Ayyubov, F.P. Rahmanov, V.T. Novruzov, A.A.Quliyeva, N.A. Pashayev, M.H.Zeynalov, İ.N.Şuklin, S.K.Mordovin, V.M. Jerebin, İ.S.Pakulin, S.A.Kovalev and other scientists have partially analyzed the issues of territorial organization and development of social infrastructure. Therefore, there is a need for a thorough study of social infrastructure in the region.

The predominance of mountainous terrain requires a special approach to the region. Nival-glacial, water-erosion and accumulative, tectonic, gravitational, arid-denudation, volcanic, pseudo-volcanic, thalassic, eolian and anthropogenic landforms have different levels of activity depending on their geographical location¹. The natural and geographical conditions of the area have a serious impact on the settlement and economic activity of the region. The role of relief, climate, as well as natural disasters (floods, landslides and earthquakes) is greater here. Taking into account the relief factor, we can say that two settlements of Shamakhi and five settlements of Ismayilli are located between the heights of 1500-2000

¹ Budaqov, B.A. Geomorphology of the southern slope of the Greater Caucasus / - Baku: Elm, - 1969. - 356 p.

m. There is no settlement above 2000 m. Semi-desert and dry-steppe, temperate-hot, cold and mountain-tundra climate types are spread in the territory of mountainous Shirvan economic-geographical region.

The decrease and hardening of the air temperature towards the height has a negative impact on the location of people. Almost all social infrastructure facilities in the region are located in the semi-desert steppe and temperate-hot climate zone. Landslides are one of the most damaging natural disasters to farms. Active landslide zones in Mountainous Shirvan on the southern slope of the Greater Caucasus, Muganli-Ismayilli road, Shamakhi's Muganli, Cabani, Dadagunash villages, Shamakhi-Pirgulu-Demirchi road, Ismayilli's Vasha, Diyalli, Sulut, II Yeniyol, Sadiyan, Tirjan, Zerjan, Zarjan, On the Namazgah-Lahij road, in Agsu, in the villages of Kalva, Gurjuvan, Khatman, Kalva, Surakhani, Dilman, Jagarak and Sangalay. Floods wash away houses and bridges, render crops unusable, uproot trees, and kill people and animals. The main rivers in the mountainous Shirvan economic-geographical region are Girdimanchay and Agsuchay and Pirsatchay.

Heavy floods are observed in Girdimanchay. In particular, upstream settlements and the recently increasing number of tourist facilities are particularly affected by floods. Mountainous Shirvan is located in an active geosynclinal area and belongs to the 9-magnitude earthquake zone. According to the risk factor of the earthquake, the economic-geographical region is one of the first in the country. Stronger earthquakes are observed in Shamakhi and Ismayilli. Earthquakes cause landslides and avalanches.

The second chapter of the dissertation is entitled "**Socio-economic base of territorial organization and development of social infrastructure.**" It analyzes the demographic development and settlement characteristics of the population, the territorial organization of industry and agriculture in the region, the role of road and transport infrastructure in the development of social spheres. 318.6 thousand people (2018) lived in the economic-geographical region of Mountainous Shirvan. 109.0 thousand people are urban

population (34.2%), 209.6 thousand people are rural population (64.8%)².

In order to improve the social situation of the population, it is very important to take into account the population and its growth rate when organizing the construction of housing, household services, health and education institutions in the region.

Studies show that the development of urbanization, especially the increase in migration mobility of the population and the large-scale migration flow in the last 20 years, have led to changes in the sex, age, occupation, national and ethnic composition of the urban population³.

There are various reasons for internal and external migration. These reasons include economic (lack of existing jobs, poor provision of social infrastructure facilities), political, natural disaster, relief, education, etc. reasons such as. The migration balance is negative. During 2011-2018, the migration balance was -9.1.

The potential of industrially important natural resources of the economic-geographical region of the Mountainous Shirvan is relatively weak. Minerals are volcanic, gravel, sand, lime and other construction materials. There are mineral waters of medical and spa importance in the mountainous zone. Climatic and bolneological conditions of Ismayilli and Shamakhi regions, forests are important resources.

Industry is underdeveloped in the region, with some light and food industries. The construction industry is represented by brick factories, stone quarries, sand and gravel production in Shamakhi, Ismayilli and Gobustan. Examples of machine-building enterprises are Azsamand, Star, Azerelektronika in Shamakhi and Isma Bike in Ismayilli. The power industry has just begun to develop in Ismayilli

² Regions of Azerbaijan, statistical collection. –Baku: Small enterprise No. 9, – 2019. – 788 p.

³ Efendiyev, VA, Gasimova, F.E. The current state of urbanization in Azerbaijan and its development directions // - Baku: Baku University News, Natural Sciences Series, - 2013. №3, - p. 158-165.

and Gobustan. The world's first hybrid power plant connecting wind, solar and biogas stations operates in Gobustan. The station has a capacity of 4.4 megawatts. Ismayilli-1 (1.6 megawatts) and Ismayilli-2 (1.7 megawatts) HPPs operate in Ismayilli. Light industry consists of sewing and carpet weaving. There is a sewing factory in Ismayilli. Carpet weaving has been developing more intensively in recent times. Azerkhalcha OJSC, established in 2016, plays a key role in this area. Azerkhalcha OJSC has two branches in Ismayilli region and one branch in Gobustan region. There are silk and kale workshops in Shamakhi and Basgal settlement. The wine industry is a specialized field in the food industry. The viticulture and wine complex of “Shirvan Wines” LLC was opened in Meysari. Confectionery, bakery and confectionery industries are of local importance. One of the largest fruit juice producers in the South Caucasus is the Azgranata plant in the Agsu region. The activity of production enterprises provides employment, increases financial opportunities and parallel service areas are formed in the region.

In the region's agriculture, viticulture, grain growing, fruit growing, vegetable growing, potato growing, almond orchards and cotton growing are being developed in Agsu. The main areas of animal husbandry are cattle breeding and sheep breeding, and there are fertile conditions for the development of beekeeping and cocoons. Recently, intensive poultry farms operating by industrial methods (“Ismayilli Broiler” OJSC, “Shaban-Poultry” LLC in Agsu, etc.) have also started operating.

In the socio-economic development of the mountainous Shirvan region.

The role of road transport infrastructure is great. Socio-economic development is hampered by the unusable condition of the Muganli-Ismayilli highway between district centers and remote mountain villages. The organization of rail and air transport to facilitate the transportation of passengers and cargo to mountainous

areas would give a strong impetus to the socio-economic development of the region⁴.

Reconstruction of the Baku-Shamakhi-Yevlakh road is important for the development of the tourism sector in the region. One of the infrastructure projects that will boost economic development is the Shamakhi-Guba road.

The third chapter of the dissertation is devoted to the study of "Modern state and problems of social infrastructure." This chapter analyzes the development trends and the current state of territorial organization in Mountainous Shirvan, the most important areas of social infrastructure, such as education, science, health, housing and communal services and energy and heating, trade, catering, tourism, communications and ICT services.

The education system requires a highly skilled, productive workforce. In other words, there is a direct link between a strong education system and economic growth⁵. Problems remain in the development of education. The low salaries of the teaching staff, the fact that some schools are still heated with firewood, the poor condition of the buildings, the small number of kindergartens, the lack of water and the lack of internet are among the issues that need to be addressed. Shamakhi Astrophysics Observatory of ANAS as an institution of science and education, acad. The activity of the Institute of Geography named after HA Aliyev "Pirgulu Geographical Research Station", Shamakhi branch of ADPU, Shamakhi State Regional College, Ismayilli State Humanitarian and Technological College is a positive case. In 2005-2019, 30.8% of educational institutions were rebuilt.

Cultural and educational areas include libraries, museums, movie clubs, theaters, art galleries, houses of culture, art and music

⁴Agamammadov, N.T. Modern state of road-transport infrastructure in the economic-geographical region of the Mountainous Shirvan // -Baku: AzTU "Scientific Works" Journal of Fundamental Sciences. - 2014. №4, - p.72-79.

⁵Shamilova, H.S. The main directions of social development of the rural population in Azerbaijan // News of Baku University, Series of socio-political sciences, - 2011. №2, - p.120-129.

schools, historical monuments (mosques, castles, tombs, domes). Libraries have an exceptional role in raising the cultural and intellectual level of the population, in shaping their worldview⁶. There are no cultural facilities such as cinemas, concerts, theaters and circuses in the economic-geographical region of Shirvan.

Health development is one of the main directions of social policy.

In countries with highly developed health, the average life expectancy is high and the infant mortality rate is low. Health service means a hospital, outpatient clinic, emergency medical facilities, pharmacy, doctors and nurses providing medical services **to the** population⁷.

In 2018, the number of doctors per 10,000 population in the country was 32.9, the number of nurses was 54.8. In mountainous Shirvan this indicator is 10.8, 31.6, in Guba-Khachmaz 13.2, 34.7, in Aran 14.1, 42.5, in Nakhchivan 16.8, 49.2, in Sheki-Zagatala 17.4, 56.8, in Ganja-Gazakh 19.5, 52.1 people.

The main indicator of the level of housing is the area of housing per capita. In 2009, the living area per capita in Mountainous Shirvan was 18.9 m², while in 2019 this figure was 18.7 m². This is higher than the national average (18.1 m²). During 2005-2018, there was an increase of 1.6 times in the supply of baths, showers, baths, 21 times in the provision of the central heating system, 3.6 times in the use of network gas, and 1.7 times in the hot water supply. The main change is the reduction in the use of wood or gas stoves due to the intensification of the gasification process. Electricity supply was 100%. Drinking water supply is poor. On the basis of implemented state programs in Gobustan region to Gobustan city, Tasi, Badalli, Arabgadim, Goydara, Darakand, Jamjamli villages, Ismayilli city to Ismayilli city, Lahij settlement, Ivanovkakend, Shamakhi region to

⁶ Geography Information Book: Compiled by Z.N. Eminov - Baku: AzİMU, - 2000. - 194 p

⁷ Regional geographical problems of the Republic of Azerbaijan: Sheki-Zagatala economic region /.- Baku: Nafta-Press, - 2003. - 190 p.

Shamakhi region, Agsu region to Agsu city, Padar, Gaygulu, Kala , Pirhasanli, Elabad, Tekle, Muradli, Gashad villages were supplied with water.

Gasification indicators of settlements in the economic-geographical region of Mountainous Shirvan are as follows: 21 out of 33 settlements of Gobustan region; 67 out of 80 settlements in Agsu region; 49 out of 63 settlements in Shamakhi region; 41 out of 109 settlements in Ismayilli region were provided with natural gas.

In mountainous Shirvan, trade (including food and non-food) is entirely controlled by the private sector. On the basis of market economy and liberal prices, relatively large wholesale and retail outlets were opened in administrative districts. Branches of OBA supermarket chain were opened in Ismayilli, Shamakhi and Gobustan, and branches of Al supermarket chain were opened in Shamakhi and Ismayilli. In 2020, the shops of the Bazarstore supermarket chain started operating in Ismayilli. This creates a competitive environment, as well as additional jobs. Retail trade plays an important role in providing the population with trade services as an entrepreneurial activity accompanied by trade and services. Recently, an electronic system of modern sales methods has been applied in trade facilities located in the administrative centers of Mountainous Shirvan. The fact that all trade facilities are private requires special control over sales prices and quality. In the administrative districts of Mountainous Shirvan, the highest growth rate during this period was in Shamakhi district (14.3 times).

Catering is one of the important areas of social infrastructure. As this type of activity is a lucrative field, the interest in it is quite large. As the pace of regional development and the income of the population increase, the tendency to provide quality services in this area is accelerating. On the positive side, per capita food turnover continued to increase during the comparable period (Table).

Table

Per capita catering turnover in mountainous Shirvan economic-geographical region (in manats)

Administrative districts	2006	2010	2015	2018
Qobustan	6,03	18,87	30,18	37,61
Ismayilli	6,59	18,86	35,03	46,19
Agsu	7,36	26,22	43,96	56,67
Shamakhi	7,24	42,67	82,14	103,2
Daghliq Shirvan	6,91	28,37	51,87	66,16

Source: Tourism in Azerbaijan, statistical collection.- Baku: 2019, – p. 91-92.

The number of new public catering facilities has been increasing in our country in recent years. Its function is to serve consumers. Catering facilities include dining room, home kitchens, restaurant, teahouse, cafe, snack bar, buffet. The development of public catering is important in reducing dependence on the budget.

The importance of tourism as a service sector in the region is growing, and there are enough natural and anthropogenic recreational opportunities for its development.

In modern times, the international tourism market is characterized by fierce and competitive struggle for customers, sales market and sphere of influence⁸.

Ismayilli and Shamakhi districts are distinguished by the diversity of historical and cultural monuments in mountainous Shirvan, their protection and greater involvement in tourism activities. In 2016, the “Strategic Roadmap for the Development of the Specialized Tourism Industry in Azerbaijan” was approved. In Shamakhi, in the Pirgulu mountain-forest landscape zone, an eco-park for wild animals - Shamakhi Safari Park - has been established on an area of 620 hectares. Recently, one of the types of tourism of

⁸ Zhukova, M.A. Tourism industry: organization management / –Moscow: Finance and statistics, - 2006. - 200 p.

special interest in mountainous and forested areas is hiking and trekking. It is a hiking route in Hayking Mountain.

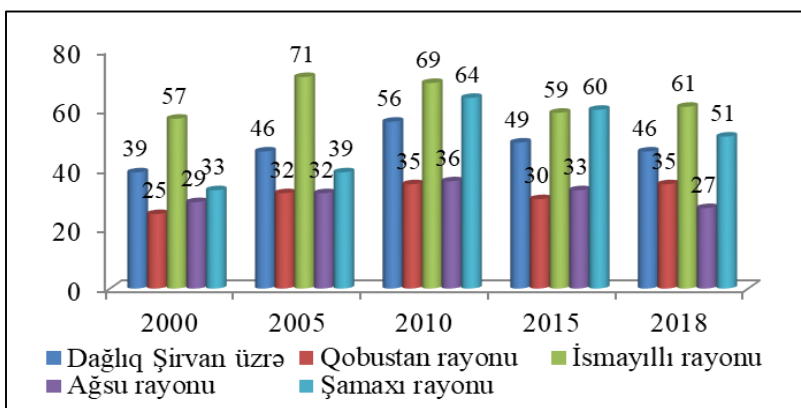
Trekking is a nature march. Ismayilli and Shamakhi administrative districts have ample opportunities for the development of these species. There are conditions for the construction of glamping hotels in the pastures. It is a camp-type, portable five-star shelter in a mountain-forest landscape with no infrastructure and a completely natural environment. At present, work is underway in this direction, especially in the Ismayilli region. Govgalar Mountain with the height of 2214 m was chosen as the initial route in the territory of Galajik village.

The development of trade, catering and tourism, being an important part of economic development in the regions, leads to the diversification of investment in the region, the reduction of unemployment, the formation of entrepreneurial activities accompanied by trade and services. Improving the purchasing power of the population, increasing the number of tourists visiting the region increases the demand for trade and catering services. It should be noted that despite the sufficient potential for the development of these areas, the organization of services is fragmented and irregular.

Provision of communication and ICT has become a necessity for the population in modern times. Without progress in the field of telecommunications, the development of computer networks, which are a key component of the infrastructure of the fifth technological structure, is impossible⁹.

Provision of the population with telephones is one of the main indicators in the communication infrastructure. The best situation in the number of telephones per 100 people is in Ismayilli, the lowest is in Gobustan and Agsu (Figure 1).

⁹ Ismayilov, G.I. Information economy / –Baku: Chanlibel NPM, –2010. – 332 p.



Source: Telecommunications and post in Azerbaijan.
- Baku, 2019, - p.46

Graph 1. Number of telephones per 100 families in Daghlak Shirvan, units

The fourth chapter of the dissertation is entitled “**Social Directions for the enhancement of cultural services**”. State programs for 2004-2008, 2008-2014, 2014-2018, 2019-2023, which reflect the socio-economic development of the regions, are aimed at ensuring economic stability, developing entrepreneurship in the regions, creating new enterprises and jobs, large-scale public and private sector has played an important role in the implementation of social and material infrastructure projects. Sufficient funds are allocated from the budget for the implementation of state programs and regulation is carried out. As a result of financial regulation, possible disproportions in the economy are prevented by redistributing financial resources between sectors and regions¹⁰. As a result of the implementation of the State Program, the following

¹⁰ Alakbarov, A.A. Problems of financial and budgetary regulation of socio-economic development: / On the economy. science. doct. diss. avtoref. - Baku, 2007. –50 p.

measures have been taken to develop social infrastructure in Mountainous Shirvan:

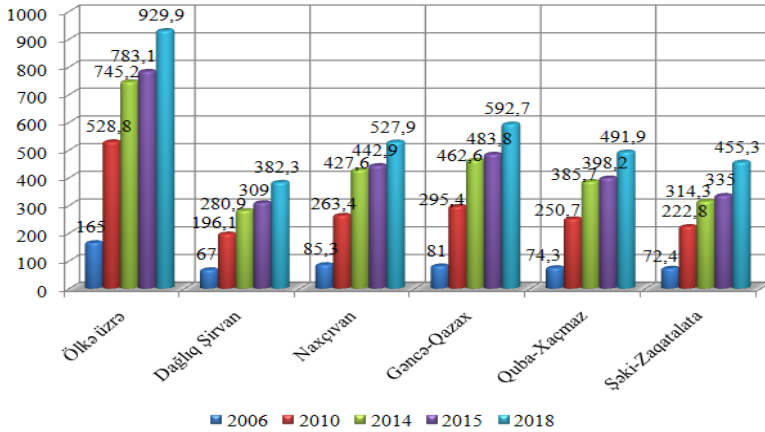
In 2004-2018 in Agsu region in Gegali, Agararkh, Padar, Arabmehdibey, Pirhasanli, Jalayir, Garamammadli, Akhundlu, Rahimli, Namirli, Kechdimaz, Muradli, Chiyni, Khalilli, Novju, Dilman, Gashad villages, in Gobustan Poladli, Jam. , In Shamakhi-Kalakhana and Avakhil, İkinci Chayli, Boyuk Khinisli, Cabani, Mугanli, Kechdemaz, Hajili, Chukhanli, Sharadil villages, Madrasa settlement, Y.Mammadaliyev settlement, in İsmayilli I Yeniyol, Muju, Mudru, Girandag, Pirabilgasim, Pirabilgasim New school buildings were built in Taglabiyan, Yenikend, Kullulu villages, Lahij and Basgal settlements. The Medical Diagnostic Center was opened in Shamakhi, and the central district hospital was repaired. A modern hospital was built in Lahij settlement and Ivanovka village in İsmayilli.

In the energy sector, İsmayilli-1 and İsmayilli-2 HPPs with a total design capacity of 3.2 MW and Gobustan Solar, Wind and Biogas HPPs with a total capacity of 5.2 MW have been launched. Construction of “mini” power plants on Girdimanchay, Pirsaaatchay, Agsuchay will increase the power supply within the relevant administrative districts, create a reliable source of use, and allow to obtain much cheaper energy than centralized power transmission lines¹¹.

In the field of gasification, 178 or 62.5% of 285 settlements of the region were provided with natural gas.

The level of paid services per capita provided to the population within the state programs has changed. The volume of paid services per capita in mountainous Shirvan in manat for the comparable period is almost lower than in the country and other economic-geographical regions (Figure 2).

¹¹Agakishiyeva, G.R. Economic-geographical and social problems of development of Mountainous Shirvan / Doctor of Philosophy dissertation on geography. –Baku, 2007.– 150 p.



Source: Paid services in Azerbaijan. - Baku, 2019, - p.38-39.

Graph 2. Volume of paid services per capita (manat)

One of the problems of economic prosperity in Azerbaijan is the existence of regional inequality¹². To ensure transparency in the study of the level of provision of social infrastructure services, a sociological survey was conducted among 815 residents of Talistan, Mujuhaftaran, Tazakend and Galinchag villages of Ismayilli, Sangalan of Agsu, Jangi of Gobustan and Gurdtepe of Shamakhi. According to the results of the survey, the level of provision of school, electricity, postal, ATS services is better, the activities of the cultural club, medicine, shop or sales kiosk, drinking water supply, garbage collection, improvement of rural roads, rural library, and domestic service was rated as follows. When developing a strategic development model of social infrastructure in mountainous areas, a model was developed from 6 (Italy, Turkey, Austria, Scandinavia, Japan, Ivanovka) syntheses, which were highly effective in practice. The essence of the models is given below:

I Italian model. Italy is one of the "big seven" of the world's most important industrial nations for its economic development. The

¹² Quliyeva, A.A. Socio-economic problems of human development in Azerbaijan / -Baku: Elm, - 2000. -124 p.

application of the Italian model can be considered effective in terms of increasing the share of services in GDP and raising the level of education. Italy, like Mountain Shirvan, is located in a seismic zone, and the experience of this country can be used in housing construction.

II Turkey model. The Turkish economy has been showing positive dynamics recently. Turkey's success in the fields of health and education, municipalities, and tourism, which is a neighbor of Azerbaijan and has extensive economic ties, can be used as a model.

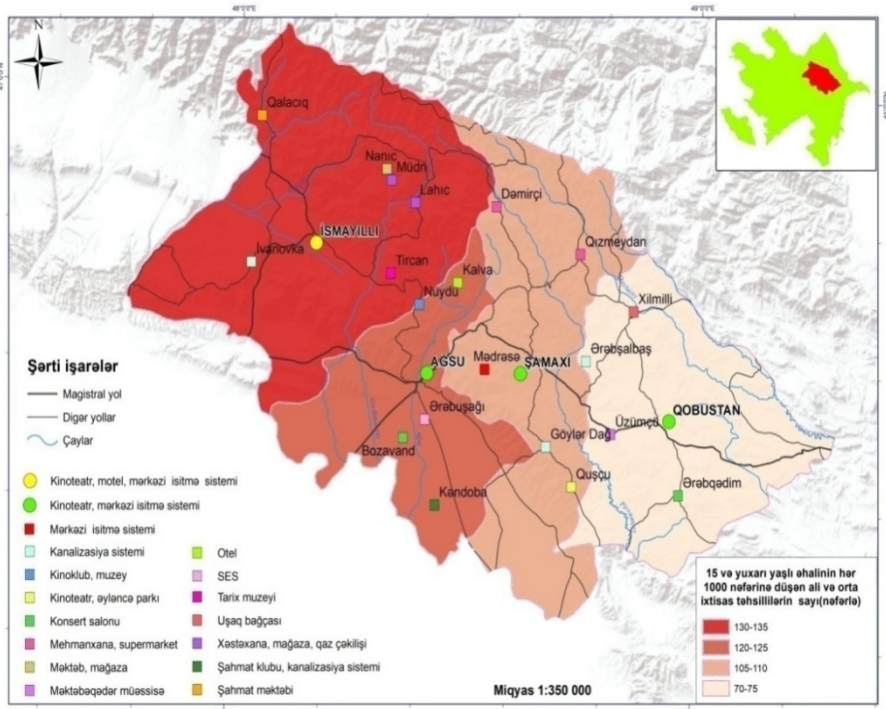
III Austrian model. Tuition fees at higher education institutions are low due to the state's financial support for education. The health care system consists of public, private and private health insurance companies. At present, there is cooperation between the Azerbaijan University of Tourism and Management and the Austrian IMC Krems University of Applied Sciences.

IV Scandinavian model. The Scandinavian model is used in Sweden, Denmark, Norway and Finland. In the Scandinavian countries, the state provides full employment, works to improve working conditions, protect the environment and develop the social system. One of the main aspects is the equal distribution of the population across the country, settlement in all cities.

V Japanese model. The main distinguishing feature of this model is that it is based on human relations, high development of science, education, health, communication and ICT. The economy produces new equipment and technology, science-intensive products and widely uses innovations.

VI Ivanovka model. The village of Ivanovka, located at an absolute altitude of 848 m above sea level in the Ismayilli region, can be considered as an example of a possible model for the effective territorial organization of social infrastructure in Azerbaijan. There is a collective farm in Ivanovka. Social infrastructure meets the requirements of modern times.

An expedited map-scheme for the development of social infrastructure in the pilot form in the economic-geographical region of Mountainous Shirvan has been prepared (picture).



Picture. Map-scheme proposed for future development on the basis of potential opportunities of social infrastructure in the mountainous Shirvan economic-geographical region

The most appropriate way to provide quality service is to build a management system that meets the requirements of international standards. At present, standardization in the field of social infrastructure is accepted as the main criterion for regulating multifaceted development. When adopting standards for services, national factors are taken into account, along with international standards, taking into account regional factors, consumer issues, and quality indicators. Quality management is carried out in accordance with ISO 9000. Research shows that economic reforms in the country should ultimately serve the development of man, improving his well-

being. This requires the proper coordination of economic policy and social policy¹³.

There are certain standards in the field of social infrastructure in Azerbaijan, and the provision is based on these criteria. For example, in the field of education, a modular school can be built with a minimum number of 22 students, and preschools with 15-20 children. A midwife station is being built in the health settlement with a population of at least 700 people. Gasification is carried out when there are 15-20 houses located 1-2 km from the main line.

Existing standards can be used as a basis for substantiating measures to improve the living standards of the population, inter-regional balancing and the study of funds and investments necessary for the development of these regions, determining the scale of production of various goods and services. Standardization must be applied to social infrastructures.

CONCLUSION

Mountainous Shirvan economic-geographical region is distinguished by the weakest developed social infrastructure among the regions of Azerbaijan. Based on the analysis of economic and geographical problems and development prospects of the region, the following results can be said:

1. In connection with the natural-geographical conditions, the factors determining the development of social infrastructure in the economic-geographical region of Mountainous Shirvan: land use, population settlement and level of economic potential were studied, it was determined that there are new jobs created within the state programs of socio-economic development does not fully cover the guarantee. This is especially due to the scattered territorial organization and low level of development of social infrastructure in mountain villages.

¹³ Amiraslanov A.K. - Baku: Encyclopedia of Azerbaijan NPB, –1998. – 208 p.

2. In recent years, a number of new social infrastructure facilities in

the mountainous Shirvan economic-geographical region have led to development, albeit partially. Thus, in the last fifteen years, the number of preschool institutions (45 institutions), secondary schools (246 schools), shops (2143 shops), post offices (82 departments), automatic telephone exchanges (106 automatic telephone exchanges), hospitals (11 hospital), number of outpatient clinics (62 enterprises), trade kiosks (71 kiosks) decreased. The unrepaired buildings in a number of social infrastructure facilities, the lack of water and central heating systems, and the poor social security of employees still remain a problem. The attractiveness of investment in this area is realized only at the expense of public funds.

3. The migration balance in the economic-geographical region of Mountainous Shirvan for 1991-2018 was negative and increased to -9.1. Only in 1991-1995 the migration balance in Ismayilli region was 0.9, in 2001-2005 it was stable in Gobustan region. The reason for this is the lack of jobs due to economic factors, especially against the background of the growing number of able-bodied people. As a result, from the regional point of view, with the exception of regional centers, social infrastructure is poorly developed, and the living conditions of the local population are relatively weak.

4. To study the experience of foreign countries, to determine the features of modern development of social infrastructure, a sociological survey "Provision of social infrastructure" was conducted among the local population (800 people in the survey) and "Social infrastructure development model" was developed. The model provides 3 levels of social infrastructure in accordance with the principles of a market economy: the theoretical basis of strategic development, methodological framework and ways to improve the living standards of the population. The model also reflects the structure of the strategic management plan, priority areas of socio-economic development, forecasting, as well as the concept of development of social infrastructure.

5. Secondary schools in a number of mountain villages of the mountainous Shirvan economic-geographical region are in need of

repair, most libraries and club buildings are unusable, their material and technical base is weak, the number of doctors and nurses per 10,000 population is low, enterprises do not have modern examination and diagnostic equipment, trade facilities are poorly developed, etc. In order to eliminate all these problems, a map-scheme "Proposed perspectives for the development of social infrastructure in the economic-geographical region of Mountainous Shirvan" was developed. It envisages the competitive advantages of social infrastructure facilities in the pilot settlements, the reduction of differences in the service sector, and the stimulation of socio-economic development.

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