

CONTEMPORARY PROBLEMS OF SETTLEMENT IN THE ETHNIC PLAIN VILLAGES OF THE NORTHWESTERN REGIONS OF AZERBAIJAN (ON THE EXAMPLE OF THE BALAKAN ADMINISTRATIVE DISTRICT)

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ABSTRACT. The geographical position of the region, ethnic composition, acceleration of the process of polarization among rural settlements, and other factors increase the relevance of the research. The subject of the research is the study of rural settlement problems, and the object of the research is the villages and ethnic minorities of the Balakan district. The study aims to reveal the modern problems of the settlement of ethnic minorities and the formation of rural agglomerations, to study the causes of the emptying of some villages, and to prepare a rural development model to prevent the problems. To conduct research, the literature and statistical materials were analyzed, as well as cartographic, comparative analysis, SWOT, and modelling methods were used. Moreover, a field investigation was conducted in the research area. It was revealed that although a majority of the rural population settles in villages with a high demographic potential, villages with a weak demographic potential, due to their higher number, play a major role in the settlement system. Moreover, some villages form rural agglomerations, while some of them lose their population due to socioeconomic challenges. Due to the intense migration processes, some villages have turned into endangered villages (Mazimustu, Goyrujuluk), and even some villages are on the brink of extinction (Bayrambina, Mazimchay, Abjit). Studying the regulation of rural settlement in the region is of practical importance in terms of ensuring the equal development of the region, ensuring the security of the borders, and protecting ethnic minorities. However, there is still a need for serious research in this field.

KEYWORDS: Balakan district, ethnic minorities, plain villages, depopulation, rural agglomeration, rural development model

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INTRODUCTION

Azerbaijan is distinguished by the diversity of its national-ethnic composition (Muradov 2021). The region covering the northwestern zone of the country is particularly distinguished by its multi-ethnicity, and it stands in second place after the Guba-Khachmaz economic region in terms of its ethnicity. Thus, the Udis and Inghilois, who are among the exotic peoples of the world and were ethnic groups of ancient Caucasian Albania; Tsakhurs, Avars, and many other ethnic peoples, who are known as Dagestani people, have settled in these areas. Generally speaking, almost all Tsakhurs, Udis, and Avars living in Azerbaijan reside in the country's northwestern region (Huseynova 2021a). The Shaki-Zagatala economic region covers the majority of the country's northwestern zone. This economic region includes 6 administrative districts (Balakan, Gakh, Gabala, Oghuz, Shaki, and Zagatala) covering 10.2% of the

country's territory (Huseynova 2021). Stretching along the southern slope of the Greater Caucasus Mountains, this region primarily consists of mountainous areas, with only up to 20% composed of plains (Huseynova 2021b). Balakan district, which is a research object, is the only district in the region where the population settles only in plain areas (Distribution of population and problems of demographic development in the Shaki-Zagatala economic region).

Azerbaijan was among the world's moderately urbanized countries, meaning that almost half of the country's population settled in rural settlements (Geography of the Republic of Azerbaijan). Despite this figure rising to 54.6 in 2023 and the country being included in the states with a moderately high urbanization level, the figure is still lower compared to developed countries (Demographic Indicators of Azerbaijan 2023). This means that rural settlements are of special importance in the country's settlement system. Balakan administrative district

is one of the least urbanized in the country. The majority of the population in the region lives in rural settlements. The district's location in the far north-west of the country, along with its mixed ethnic composition and the special role of rural settlements in population settlement, underscores the significance of conducting research in this area. At the same time, the rapid progress of the polarization process between rural settlements, that is, the growth of some villages by forming large agglomerations, and the depopulation of some villages, increases the actuality of the research. The subject of the research is the study of the settlement problems of minority ethnic groups in the Balakan district, and the object of the research is the villages of the Balakan district and the minority ethnic groups living there.

As in other countries of the world, the main part of the rural population in Azerbaijan engages in agriculture and related fields (Eminov 2005). Therefore, the availability of arable land resources, an irrigation system for agriculture, and favorable social infrastructure in rural areas are very important factors. However, problems in this direction remain in the country.

Generally, the rural population encounters numerous socioeconomic and environmental problems in the context of climate change, poverty, geographical distance, and other factors (Mihai and Iatu 2020). These problems lead to irregular settlement of the population in the country, including any region, and the emergence of demographic problems.

The settlement problem in the study area manifests itself primarily in the form of settlement polarization. In other words, in some areas, the geographic concentration of the population has accelerated, and large rural agglomerations are emerging, while in other areas, the process of depopulation has flourished. Generally, in many regions of Azerbaijan, villages form village agglomerations. This process takes place in both mountainous and plain areas. Considering that the settlements of the research area are located in plain areas (except for 1 village), attention was paid to agglomerations formed in plain villages. Strong socioeconomic and transport relations between villages and each other, as well as their strong demographic potential, have created conditions for the formation of rural agglomerations. In such areas, the migration process is slower. However, the strong migration process in small villages has resulted in their emptying.

Migration plays an important role in the region's settlement. It is known that in many countries around the world, migrations are mainly from rural to urban areas. The rural population considers leaving their place of residence as the main way to change their economic activity to lead a better life (Adamowicz 2022). This laid the foundation for the migration of the rural population from the village to urban places. As a result, there are negative trends in the demographic indicators of the population, and serious problems arise in the settlement. The emergence of such problems in the region located in the border zone can also create problems for the security of the border zone. It is necessary to prepare a special sustainable rural development model that prevent the emergence of such problems by regulating the ethno-demographic situation and settlement in the region. Achieving sustainable and balanced development in rural areas entails enhancing the living conditions of the rural population and creating favorable work environments, all while safeguarding the natural environment, landscape, and cultural heritage of the region. That is, the sustainable rural development concept approach aims to reconcile environmental, economic, and

social rights, utilizing an appropriate development strategy that not only improves the population's living conditions comprehensively, but also maintains healthy and robust rural communities capable of economic activity while preserving their values (Adamowicz and Magdalena 2018).

The primary goal of the research is to analyze the changes in the modern state of settlement in rural settlements, to reveal the modern problems of the settlement of ethnic groups, the formation of rural agglomerations (the reason for its formation, typology and classification), and to study the causes of the emptying of some villages and prepare a rural development model to prevent the problems that have arisen.

To achieve this goal, the following tasks have been set:

1. Determining the region's ethnically diverse rural settlements and their national-ethnic composition, transferring the data to the map;
2. Analysis of migration factors in the administrative district and its impact on the settlement system;
3. Study of population changes in the years 1999-2019 based on the grouping of villages in the region and the distribution of the population by altitude zones;
4. Analysis of the reasons for the formation of large rural agglomerations and their typology;
5. Revealing the factors that lead to the decrease in population in the villages that have been emptied and are in danger of depopulation;
6. Development of a rural development model to eliminate problems in rural settlement.

The scientific novelty of the research work includes:

1. For the first time, the ethno-demographic situation of the population in the Balakan district was studied by surveying the district level;
2. The modern settlement of the population in the district was compared with previous years and the reasons for the differences were investigated;
3. For the first time, the emergence causes of rural agglomerations, their typology and characteristics were studied;
4. Issues of population decline in villages and their causes were investigated;
5. A development model was developed to eliminate the problems arising in the settlement system of the region.

The database for the research work is based on 3 sources. The first source is obtaining theoretical knowledge from literature materials, collecting information about village settlements, and analyzing of statistical material; the second source is satellite images of the district; and the third source is the results of survey materials.

MATERIALS AND METHODS

The Balakan administrative district, which is a part of the Shaki-Zagatala economic district, is located in the remote northwestern part of the Republic of Azerbaijan. The total area of the region is 923 km². The region is surrounded by the Russian Federation (Republic of Dagestan) from the north, Georgia from the west and southwest, and the Zagatala district from the east (Fig.1). According to the latest statistics (2023), the population of the region is 100,2 thousand people (Demographic Indicators of Azerbaijan 2023). The main part of the population of the district is composed of Azerbaijanis (74.5%), a part of Avars (23.5%), and the rest of Inghilois, Russian, and other ethnic and national minorities (2%) (Census materials of the population of the Republic of Azerbaijan-2019). In total, there is 1 city

(Balakan city), 1 small town (Gabagchol), and 57 rural settlements in the district.

The research database is based on 3 main sources: statistics and literature materials; satellite images; field investigation. During the research process, to collect general information about the region, analyze theoretical materials, and study settlement in the area, the research works of authors who conducted research in this field and related fields in previous years were investigated. Numerous studies have been carried out in Azerbaijan on the ethnic composition of the population and settlement. In this field, Z.N. Eminov (2005), N.H. Ayyubov (2015) studied the settlement of the population in the Republic of Azerbaijan as altitude zones, R.N. Karimov (2016) researched the villages and village population of the Shaki-Zagatala economic region, Sh.M. Muradov (2013, 2022) studied the demographic, including the ethno-demographic situation in Azerbaijan, and G.J. Javadov (2000) studied the ethnic groups living in Azerbaijan and the change in their number. The places of residence of minority ethnic groups and their linguistic features were studied by J.M. Clifton, C. Tiessen (2005), W.M. Schulze (2013), and others. The research works of D. Sikorski, Latocha, R. Szmytkie, K. Kajdaneek, P. Miodonska, P. Tomczak (2020), A.A. Khan, M. Somunju (2013), A. Mahdi, M.H. Mahdi, M. Shafiei (2014), L. Ma, M. Chen, X. Che, F. Fang (2019), A. Vaishar, H. Vavrouchova, A. Leskova, V. Perinkova (2021) and others are important sources for obtaining information in the field of theoretical foundations of rural settlement and rural development models. Furthermore, statistical materials were analyzed to study the demographic situation.

The second main database of the research work is satellite images of the district covering the years 2017–2022 provided by Azercosmos. Satellite images were used to study the location of settlements in the region as well as their spatial and time changes. The data were compared with the data of the previous years before the

processed images were processed in the ArcGIS software. At this time, the comparative analysis method was used.

Finally, the last database was a survey of pre-selected rural settlements in the district to find out the reasons for the changes in the demographic situation and settlement of the population and to become more familiar with them. The survey process lasted for 1 week (02.01.2023–02.07.2023). Then the questionnaires were scrutinized and general results were obtained. Surveys were conducted in 30 villages, which are densely populated by Avars (Yeni Sharif, Sharif, Shambul, Meshashambul, Isakhligirma, etc.), Ititala village, inhabited by Inghilois, Gamishtala, Garaveli, Gadashbina, Tulu, Talalar, Hetovlar, inhabited by Tsakhurs, Avars, and Azerbaijanis. 250 people took part in the survey process, and the respondents included both genders, different age groups, those engaged in various fields of activity, and different ethnic groups (Table 1).

The proposals, opinions, and comments of the local population were taken into account when developing a sustainable development model for rural settlements.

During the research work, several research methods were employed. To study the national-ethnic composition and migration processes in the region, the field research method; comparative analysis for the analysis of the statistical indicators of the population; and the cartographic method for transferring the obtained data to the map and to analyzing the maps were used. In addition to this, SWOT analysis and geographic modelling methods were used for grouping the measures intended to eliminate the problems.

RESULTS AND DISCUSSION

Although the Balakan district covers areas from 140 meters above sea level to 3,123 meters, the population of the region is settled in areas up to 550 meters, that is, in the areas surrounding the Ganikh-Ayirchay valley of the

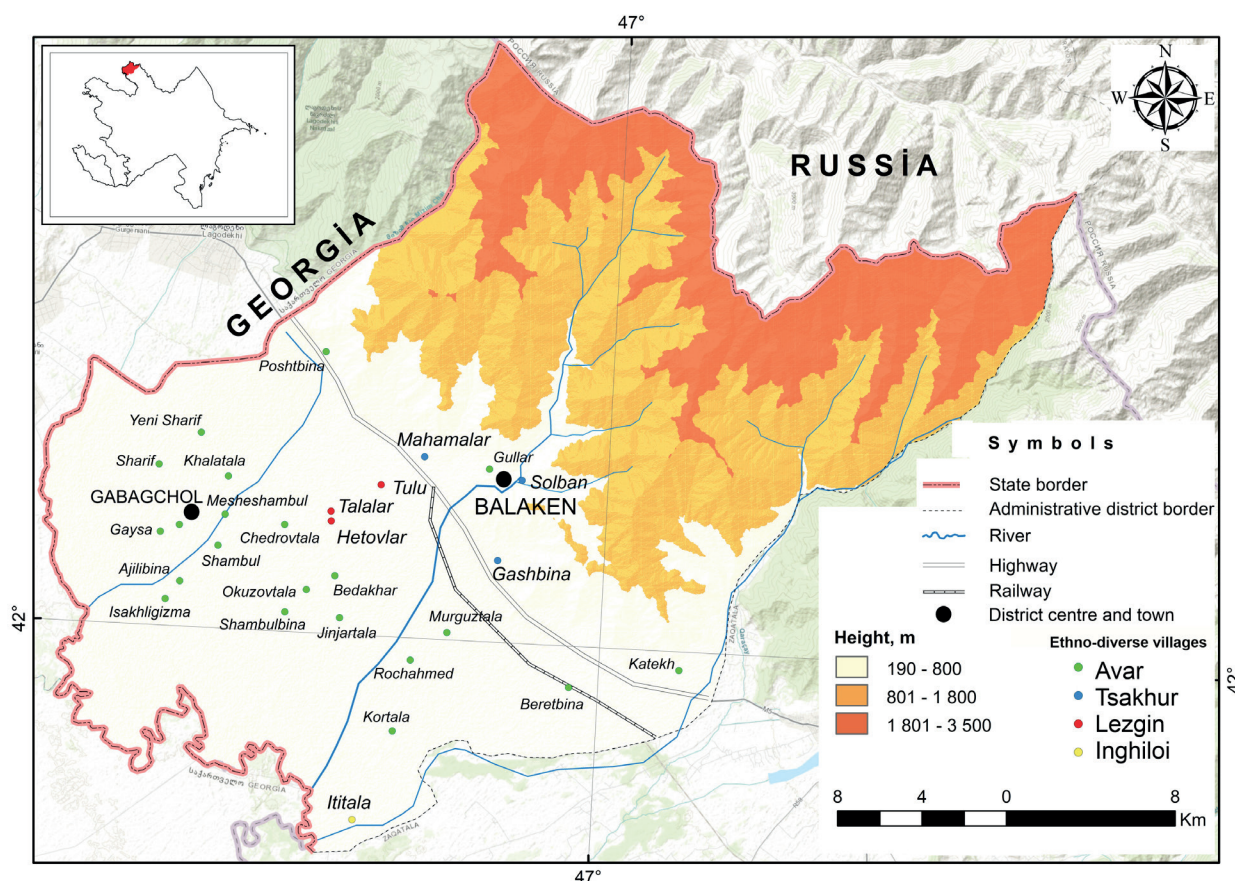


Fig. 1. Map of the study area

Table 1. Composition of respondents participating in the survey

Demographic features		Number of respondents	Share, %	Total
Sex composition	Female	115	46.0	250
	Male	135	54.0	
Age composition	15-24	28	11.2	250
	25-34	55	22.0	
	35-44	47	18.8	
	45-54	54	21.6	
	55-64	39	15.6	
	65 and over	27	10.8	
Occupation	Student	9	3.6	250
	Housewife	23	9.2	
	Agricultural sector	153	61.2	
	Industrial sector	9	3.6	
	Governmental sector	12	4.8	
	Private sector	5	2.0	
	Retiree	27	10.8	
	Unemployed	12	4.8	
Ethnicity	Avar	138	55.2	250
	Inghiloi	80	32.0	
	Tsakhur	12	4.8	
	Lezgin	20	8.0	

region and in the foothills. The region's middle and high mountainous areas are part of the Zagatala National State Reserve. The lowest settlement in the region is the village of Bayrambina, located at an altitude of 148 meters, and the highest settlement is the village of Mazimchay, located at an altitude of 558 meters. All the remaining villages are located lower than 500 meters.

Turning to the ethnic composition, Avars differ from the minority ethnic groups in the Balakan district in their share (23.5%). In addition, other minority ethnic groups, including the Inghiloi, Lezgins, and Tsakhurs, settled in the area as well. Thus, Sharif, Yeni Sharif, Shambul, Meshashambul, Isakhligirma, Gullar, Ajiliqbina, Mahamalar, Katekh, and several other villages of the region are densely populated by Avars; that is, these villages can be mainly considered Avar villages. Lezgins and Tsakhurs are sparsely settled in Tulu, Gasbina, Mahamalar, and other villages. The Inghiloi live only in the village of Ititala. The Muslims make up the majority of the Inghiloi in this village, having migrated from the Aliabad settlement in the Zagatala district (Encyclopedic dictionary of Azerbaijani toponyms).

Migration processes have a special role in the formation of the modern ethno-demographic situation of the population and settlement in the region (Huseynova 2022c). The area has been one of the most active migration districts in the country, both in modern and historical times. At the same time, the national-ethnic composition of this area became complicated as a result of those migration processes. According to some historical materials, the Inghiloi who settled in the Balakan district

are the descendants of the historical inhabitants of the Shaki-Zagatala region, that is, the descendants of the Gel tribe living in Ancient Caucasian Albania, but the migration of the Avars to the mentioned area dates back to the 15th and subsequent centuries (Geybullayev 1991; Javadov 2000). According to Abbasov (Abbasov et al. 2022), people have participated in migration processes since ancient times, and natural conditions pushed them to settle in other places.

In modern times, the rural population temporarily or permanently migrates to various places. This situation may have a positive or negative impact on their rural origin (Mendola 2010; Hidayat et al. 2022). There are various drivers of the emigration of the rural population, and this includes an economic situation (Cheng et al. 2006; Lyu et al. 2019; Marta et al. 2020), life satisfaction (Liu and Pan 2020), natural disasters (Berlemann and Steinhardt 2017; Gray and Mueller 2012; Ishtiaque and Nazem 2017), education (Crivello 2011), and finally, a political situation.

In the research area, migration processes happen mainly under the influence of socioeconomic factors. Regarding the shift in the migration balance over time, during the initial years of independence (following the collapse of the USSR), the deterioration of the socioeconomic and political conditions in all regions of the country, particularly the remote ones, led to a suspension of business operations. In other words, the difficulties of the transition period accelerated the process of migration out of the country during those years. As a result, the migration balance received a negative value. Moreover, in recent times,

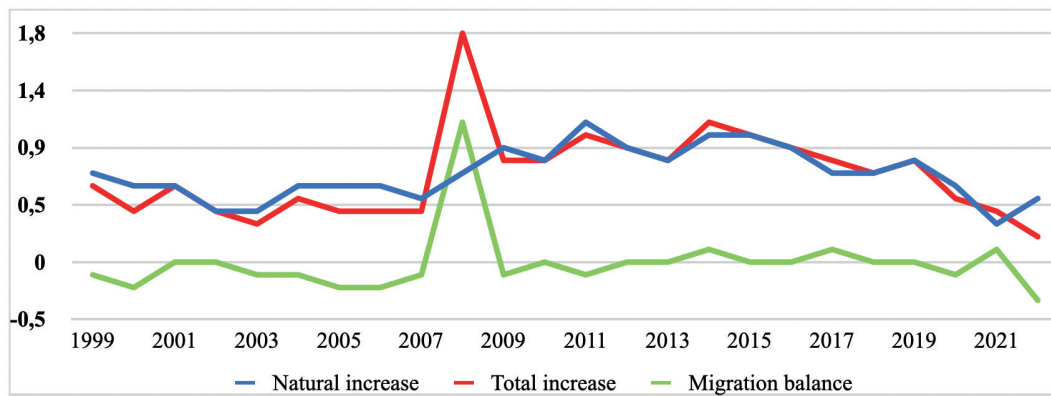


Fig. 2. Natural growth and migration of the total population in the administrative district from 1999-2022 (thousand people)

Source: "Population of Azerbaijan" statistical compilation-1999-2023.

the number of climate migrants has increased due to the drought, a decrease in the amount of precipitation, and other climate-induced factors. This situation is observed in the study area, according to the survey materials. However, in recent years, the migration balance in the region has remained stable and, in some cases, has received a positive value (Fig. 2).

However, it should be noted that sometimes the number of migrants is registered in the area of their residence, regardless of whether they migrated to Baku or neighboring countries, and their numbers are taken into account in the statistical materials because they are registered in the area of their residence. That is, receiving a positive evaluation of migration does not imply that it does not occur in the area. In the survey materials, it was recorded that migration is still intensive. In Balakan, internal migration is mainly in the direction of Baku city, and in external migration, Ingiloiis prefer migrating to Georgia; and Avars and Azerbaijanis prefer migrating to Russia (Fig. 3).

Balakan is one of the poorly urbanized administrative districts of the country (15.8%). The population is primarily concentrated in rural settlements. There are 57 villages, 1 city, and 1 small town in the administrative district (Demographic Indicators of Azerbaijan 2023).

In the village settlement system of the Balakan district, the main part of the villages is composed of village groups with a population of 501-1000, while the main part of the population is concentrated geographically in village groups with a population of 3001-5000. In recent years, serious problems have continued to appear in the Balakan district's rural settlement system. Having a special role in the dominance of small and medium-sized villages in the rural settlement system is among these problems. A large number of villages from this group in the rural settlement system, especially the large number of villages with a population of up to 200, increases the extinction risk of the village and accelerates the process of population polarization. In this type of small rural settlement, the



Fig. 3. Map of the direction of modern migration in the Balakan district

depopulation process is faster. This is due to the fact that either the population in these settlements decreases with demand and supply, or the opposite process occurs when the population's needs aren't satisfied, they decide to leave their current residence. Currently, 5 villages in the region (Goyamtala, Darvazbina, Abjit, Bayrambina, and Mazimgarishan) have no permanent population. In other words, these villages are used only for temporary living in the summer (Table 2). None of these mentioned villages have a suitable socioeconomic base for living. Interestingly, these uninhabited villages are located mainly in the border zone.

One of the important issues to be studied during the location of the population and settlements is the geopolitical study of the location of the population and settlements in the border zone, especially in ethno-diverse border regions. It is known that border areas differ in their problems and characteristics. In many countries, border areas are less populated, and such areas are not considered accessible in terms of providing basic facilities. In some areas where the ethnic composition is different, it can be a "hotbed of conflict". In other words, ethno-diverse border areas are relatively "active" areas from a political point of view. From a geopolitical point of view, as in all countries of the world, the protection of political stability in ethnically diverse settlements along the border is one of the important issues. In this regard, the demographic indicators of the population and population settlement in those areas should be kept under constant control.

As we mentioned earlier, even though the Balakan district covers different altitude zones and large areas, the population is mainly settled along the Ganikh-Ayrichay valley, which covers the southern zone of the region and covers heights of up to 500 meters, making it suitable for settlement and agriculture.

Turning to the location of residential areas according to altitude zones, although there are 4 rural residential areas in the altitude zone up to 200 meters, only Ititala village has a permanent population. The other 3 villages (Goyamtala, Darvazbina, and Bayrambina) have no permanent population (Fig. 4).

There is only 1 village in the mountainous area of the district. This is the village of Mazimchay, which has a medium demographic potential and whose population is growing

at a slow pace. As can be seen from the Table 3, the vast majority of the region's population and rural settlements are concentrated at an altitude of 200-500 meters. This indicates that the population and settlements in the area are not scattered but polarized. That is, the population is primarily concentrated in a specific altitude zone and area. This creates serious problems in the regulation of factors such as ensuring the security of the border zone in ethno-diverse regions, appropriating territories, using the potential of natural resources, and so on.

In the rural settlement system of the district, it is possible to find villages with both large ethno-demographic and weak ethno-demographic potential. As examples of large ethnic-rural settlements, Katekh, Hanifa, Tulu, and others can be cited. Unambiguously, villages in this group are mostly located close to the district center and each other and form large village agglomerations. These villages differ due to their proximity to each other and their strong socioeconomic base. The majority of the population of these villages with a large demographic potential is composed of Avars.

What is a rural agglomeration? Rural agglomerations, which manifest themselves more in developing countries, are the connections of villages located close to each other through strong economic, social, demographic, and transport links, and as a result, they are the development and growth of the villages.

Similarly, as in urban agglomerations, some settlements serve as main villages and satellites for rural agglomerations. Thus, as the village that plays the role of a main village develops, it also supports the development of surrounding villages. However, there is an important point here: when the typological indicators of the villages are the same, the development is faster; that is, rural agglomerations are formed. Rural agglomerations can be different according to their typology. Naturally, this diversity affects the strengthening of their relations, i.e., the formation of agglomeration. The typology of rural agglomerations in the northwestern region of Azerbaijan can be divided as follows:

1. as the population;

2. as the employment of the population (agricultural-oriented, agricultural products processing-oriented, tourism-oriented, etc.);

Table 2. Changes in the number of village groups and the population of those villages in the Balakan administrative district

Rural groups	1999		2009		2019		Increase or decrease of the number population (%)
	Number of villages	Number of population	Number of villages	Number of population	Number of villages	Number of population	
0-50	5	-	5	-	5	-	-
51-100	8	620	4	259	4	293	-52.7
101-200	2	236	7	903	7	1,108	+469.5
201-500	15	5,734	12	5,024	8	3,286	-42.7
501-1000	6	3,852	8	5,657	11	7,176	+86.3
1001-2000	5	7,938	3	4,535	5	7,524	-5.2
2001-3000	8	19,390	8	18,690	6	14,981	-3.6
3001-5000	5	18,448	7	25,611	8	29,370	+59.2
5000 and over	3	17,619	3	18,832	3	19,090	+8.3
Total	57	73,837	57	79,511	57	82,828	+12.2

Source: Census materials of the population of the Republic of Azerbaijan-1999, 2009, 2019

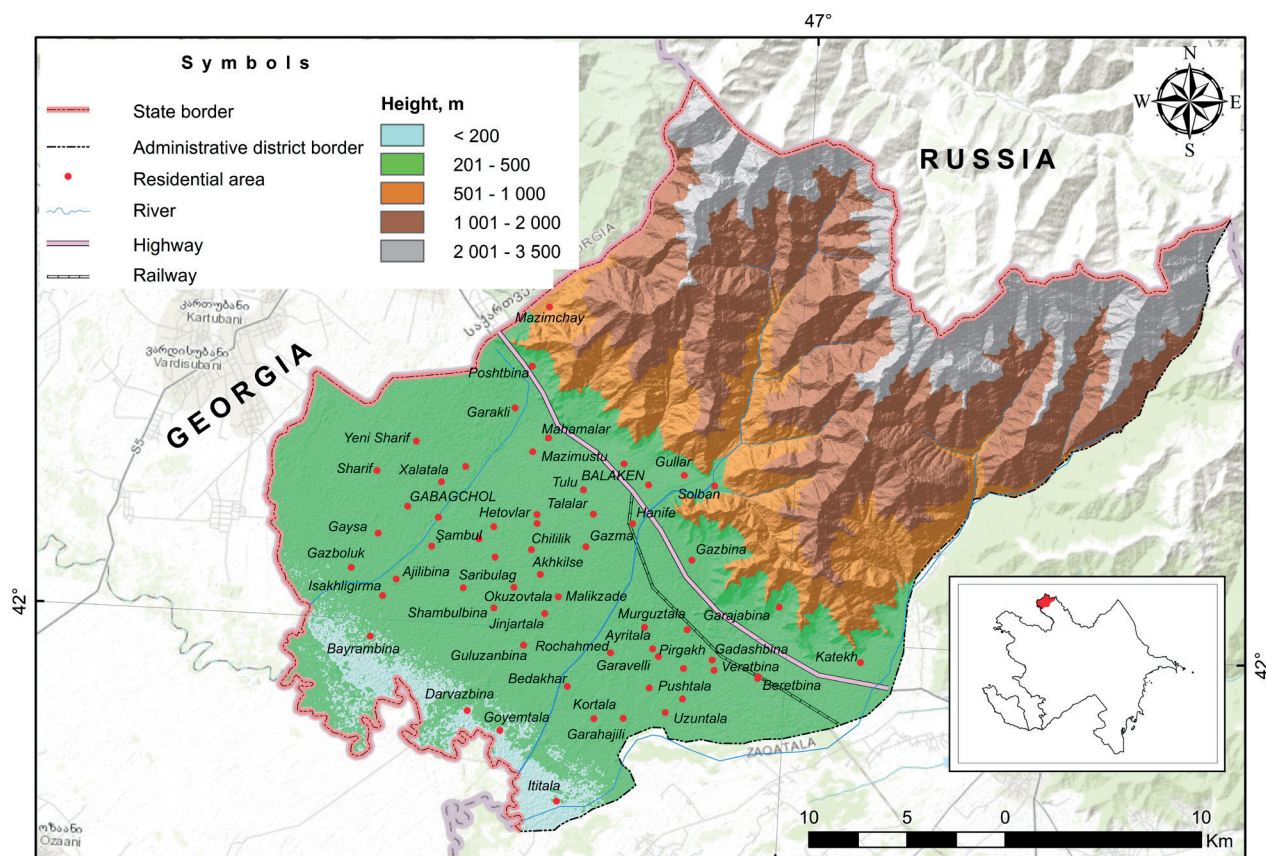


Fig. 4. Map of the location of settlements by altitude zones

Table 3. Change of settlements by altitude zones

Altitude zones	1999		2009		2019		Indicator of increase or decrease of the population (%)
	Number of villages	Number of population	Number of villages	Number of population	Number of villages	Number of population	
0-200*	4	2,029	4	2,240	4	2,504	+23.4
201-500	52	71,457	52	76,913	52	79,959	+11.9
500 and more	1	351	1	358	1	365	+4.0
Total	57	73,837	57	79,511	57	82,828	+12.2

*In this altitude zone, there is no permanent population of three villages.

3. as national-ethnic composition;

4. as its integration into cities.

5 village agglomerations were formed in the Balakan administrative district (Fig. 5a):

- Rural agglomeration around the city of Balakan - Hanifa village (4,722 people), Gazma (2,749 people), Talalar (3,529 people), Tulu village (6,174 people), Mahamalar village (3,787 people), Gullar village (5,501 people);

- Sharif-Shambul village agglomerations - Sharif village (3,526 people), Yeni Sharif village (3,447 people), Khalatala (3,006 people), Meshashambul village (2,597 people), Gaysa village (3,787 people)

- Katekh-Mazikh village agglomeration - Katekh village (7,415 people), Mazikh village (1,653 people Zagatala district)

- Ititala (2,504 people) -Ashagi Chardakhlar (1,166 people Zagatala district)-Danachi (7,781 people Zagatala district) triangle

- Gerekli village agglomeration - Gerakli village (3,575 people).

From these agglomerations, the suburbs of Balakan (rural agglomeration around the city of Balakan) are distinguished by their proximity to the city center, strong

transport links with the city center, and high level of social infrastructure. Surely, these villages are distinguished by their strong demographic potential.

The main strength of the Sharif-Shambul agglomeration is the population employment, i.e., agriculture development. The main feature that connects these villages is strong transport and economic connections.

The main indicators that connect Katekh and Mazikh agglomerations are their proximity to each other despite being located far from the district center they belong to, their economic relations, and their national-ethnic composition.

The Ititala-Ashaghi Chardaglar-Danachi triangle has come close to each other mainly due to economic relations and national-ethnic composition.

The village of Gerekli is still under construction.

It is interesting that, despite being located in two different administrative districts, when a village in one district establishes strong ties with a village in the neighboring district, they can form village agglomerations. This can support the development of villages located in remote areas that are close to each other.

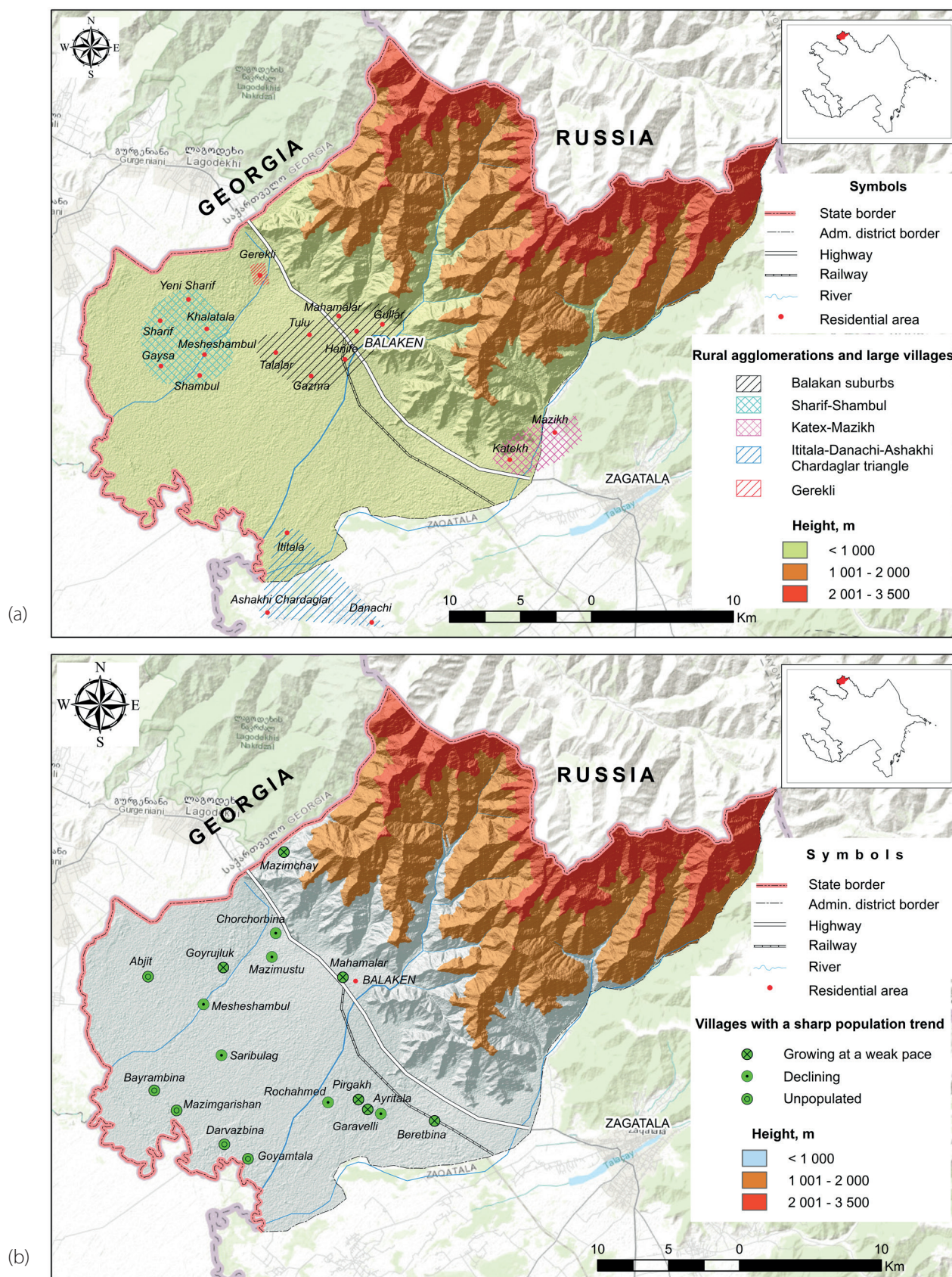


Fig. 5. (a) Village agglomerations; (b) Map of threatened, endangered and extinct villages

In some villages in the district, a serious decrease in population was recorded. The villages where the decrease was registered are mainly inhabited by Avars. Thus, from 1999–2019, the population decreased in 12 villages of the district, and in 2 villages, the village population was less than 100 people (Fig. 5b). In some villages in the district, the population is growing at a very slow pace. This may result in population decline in these villages in the following years (Table 4).

Villages with declining populations and slow growth are typically located far from the city center and off highways. These villages have relatively poor social infrastructure and are relatively unlivable. The main reason for the depopulation of these villages is the intensive migration from those areas, especially the lack of job opportunities in these villages, which has led to faster migration processes among young people. In this case, natural growth declines gradually. As a result, the population of the village decreases,

and these villages are included in the list of villages that are in danger of depopulation. Villages where depopulation is observed have many common characteristics, and the most important of them is that these villages have poor transport connections, are located far from the city center, and have a weak socioeconomic base.

Generally, there are two main reasons for the emptying out of rural settlements: human intervention and depopulation (Vaishar et al. 2021). The first case occurred in Azerbaijan in the 1960s. This was mainly related to the creation of a collective farm in USSR territory. In those years, all over the territory of the USSR, including the Azerbaijan SSR, small and very small villages were considered unpromising areas (Demographic development of villages in the Republic of Azerbaijan and settlement problems of rural population). As a result, in the Shaki-Zagatala economic region, the population living in mountain villages was relocated to plain villages. This resettlement policy has created serious problems in the settlement of the mountain villages. The second case, i.e., depopulation, was related to uneven socioeconomic development in the region or any area of the region, and this process is still ongoing. In Azerbaijan, the depopulation process takes place mainly in remote mountain villages and villages with poor social infrastructure.

In general, it should be noted that in recent years, the process of polarization between both homogeneous and heterogeneous types of settlements has continued to manifest itself in the country, and this process has gradually intensified in recent years. According to the statistics of the UN, although the gaps between the development of the countries in the world are decreasing, these gaps in the internal development of the country are gradually increasing and manifesting themselves in the settlement system of the country (Gao and Hu 2022). Especially in developing countries, including Azerbaijan, this manifests itself in the form of urban-rural gaps. However, it is interesting that in any region or part of the country,

these gaps are observed between both urban and rural settlements. That is, although large villages or large cities grow, small villages and small towns either grow at a slow pace, do not grow, or decline.

While urban settlements play an important role in providing living and working places for the population, and being a center of innovation and technology, rural settlements also play a special role in the settlement system. Rural settlements have increasingly become a "property" used by urban residents, entrepreneurs, and tourists, and as a result, villages are considered a public product of the population (Adamowicz 2022; Guzal 2018). Rural areas are also a "source" that provides food for people. In addition, rural areas are a source of labor resources used in urban areas, a refuge for endangered plant and animal species, natural landscapes, and areas in need of protection. Rural settlements are an important element of national and regional cultural heritage (Mihai and Iatu 2020). In general, rural settlements have a special role in agricultural production, environmental protection, and cultural heritage protection (Neal 2013). Considering the above, it can be concluded that villages have a very important role in the socio-economic and cultural life of the country. However, under the influence of various forms of rapid industrialization and urbanization in recent years, some rural settlements have begun to decline (Liu and Li 2017). Economic decline in rural areas, population decline or slowing growth, and development gaps between urban and rural settlements have become widespread, hindering sustainable regional development (Woods 2005). There is a great need to develop a rural development model in the region to prevent the acceleration and elimination of such problems.

Generally speaking, the development of sustainable development models is one of the most important factors for the regulation of rural settlements and demographic development in any area. Sustainable development refers to the totality of activities aimed at meeting the basic

Table 3. Change of settlements by altitude zones

№	Name of village	Altitude (meter)	Ethnic composition	Population			Share of decrease and increase 1999-2019 (%)
				1999	2009	2019	
1	Rochahmad	230	Avar	212	186	172	-18.9
2	Meshashambul	210	Avar	2,682	2,498	2,411	-10.1
4	Garaveli	232	Mixed*	386	384	385	-0.3
5	Saribulag	213	Mixed*	531	453	513	-3.4
6	Gullar	475	Mixed*	5,481	5,882	5,355	-2.3
7	Mahamalar	400	Avar	4,245	4,276	3,213	-24.3
8	Gasbina	290	Avar	1,716	2,238	1,140	-33.6
9	Mazimchay	558	Avar	351	358	323	-8.0
10	Goyrujluk	250	Mixed*	56	57	51	-8.9
11	Shambul	220	Avar	2,027	2,055	1,997	-1.5
12	Mazimustu	250	Mixed*	73	65	70	-4.1
Villages with slow population growth							
13	Solban	450	Avar	360	514	377	+4.7

* The population of the mixed villages consists mainly of Azerbaijanis and Avars.

Source: Census materials of the population of the Republic of Azerbaijan-1999, 2009, 2019; field research materials.

needs of the population by conserving natural resources for future generations (Marsden 2003). The sustainable rural development model prevents the polarization process in population settlements by reducing the gaps between settlements. At the same time, the model of sustainable rural development reduces the poverty level among the population in rural areas; that is, it serves to create new areas of income for the population, and as a result, the level of well-being of the rural population increases.

The experiences of foreign countries can be used to develop villages in Azerbaijan, especially those located in remote and border areas. However, it should not be forgotten that those experiences should be adapted to the local environment, or a development model should be established accordingly. Because the villages of every country or any of its regions have both similar and different problems. In such a case, a specific development plan for the area would be more appropriate. This plan should conform not only to the natural and geographical conditions of the area, but also to the lifestyle of the population living here. Of course, it is appropriate for sustainable development to use modern technological practices when establishing the development model. However, villages cannot be technologized all of a sudden. Because the technologization

of villages and the establishment of “smart settlements” is a process that requires serious time and resources.

In-situ urbanization is one of the main issues to be taken into consideration when establishing a rural development model. In-situ urbanization is a model of rural development, and it means bringing the living standard of the rural population to the urban level without turning the rural settlement into an urban settlement in terms of territory and population¹. This form of urbanization has been used in recent years to prevent people from moving from villages to other settlements, especially to large cities with many job opportunities. This practice is used in Japan, China, Sri Lanka, and other countries around the world.

Before developing a sustainable development model for the region, it is necessary to get acquainted with the current situation of the region. For this, a SWOT analysis was used for the research region. SWOT analysis is one of the most basic tools used for strategic analysis of rural areas (Harbiankova nad Gertsberg 2022). Thanks to this method, the “strong” and “weak” aspects of the villages located in the research area; will be able to determine opportunities and threats (Fig. 6).

Regarding the results of the analysis, we can see that the region has rich soil, agro-climatic resources, and water

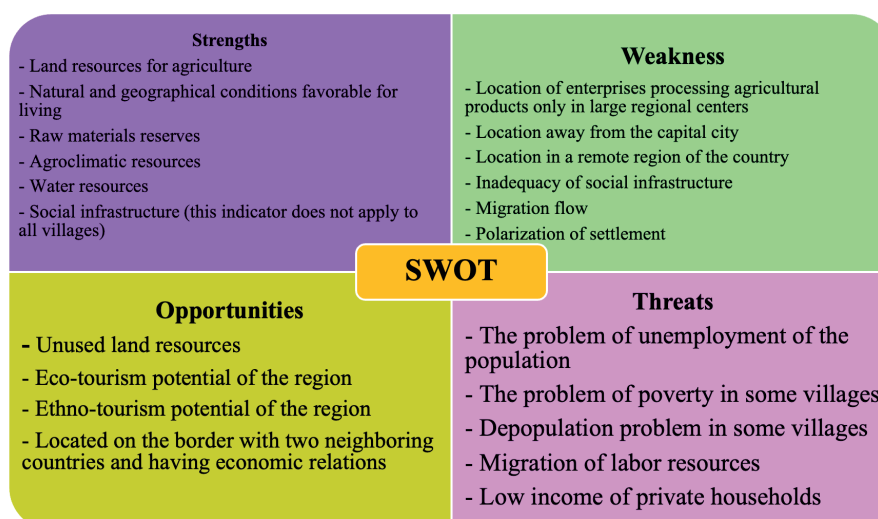


Fig. 6. Analysis of the villages of the Balakan administrative district by SWOT analysis

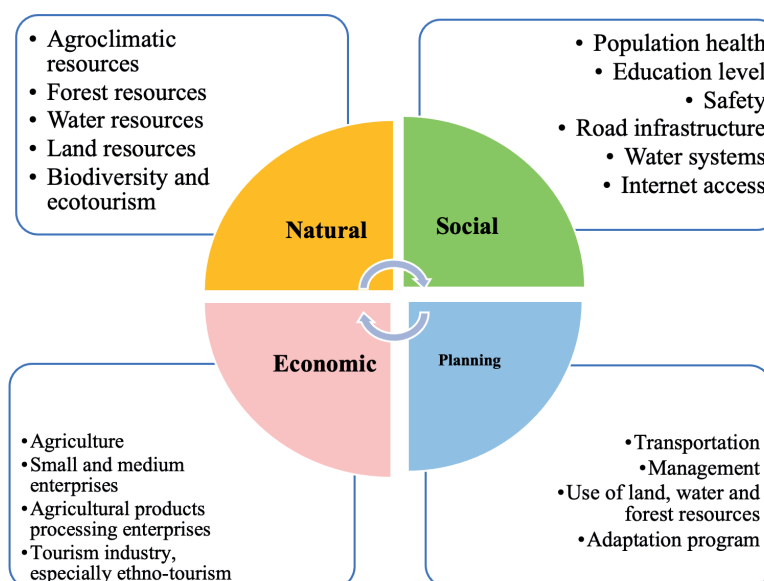


Fig. 7. Geographic modelling for a sustainable rural development

¹ World Social Report. Reconsidering Rural Development. (2021). Department of the Economic and Social Affairs of the United Nations, <https://desapublications.un.org>

resources for agriculture development. In addition, the state of social infrastructure in some large villages in the region is quite good. These are among the strengths of regional villages. However, the villages of the region have some weaknesses, which are manifested in the absence or remote location of enterprises processing agricultural products, in general, the location of the region in the remote part of the country, migration flows, population polarization, and several indicators. The presence of rich mountain-forest landscapes, historical-cultural monuments, and the settlement of ethnic minorities in the area indicate that various types of tourism can be developed in this region. In recent years, the state has taken some steps in the development of ecotourism and mountain and rural tourism in the region, and some tourist routes have been prepared. Especially in the villages of Mazimchay, Talalar, Ajiliqbina, Mahamalar, and others, there is potential for the development of various fields of tourism, especially eco- and ethnic tourism. Furthermore, the location on the border with the two countries, as well as the presence of a road to Tbilisi, the capital of Georgia, can strengthen economic relations between the two regions. Among the threats faced by the administrative region are the problems of unemployment in some areas and, as a result, the migration of young people to Baku city, the depopulation of some villages, and so on.

To develop a geographic model of sustainable rural development, the natural, socio-economic, and cultural potential and function of the area should be taken into account. For this, we will use 4 criteria: natural, social, economic, and planning (Fig. 7).

The establishment of a "rural development model" in ethno-diverse villages with declining and slow-growing populations in the study area was designed to serve the following goals (Huseynova 2023d) (Fig. 7):

1. Elimination of uneven socio-economic development and poverty in rural areas.
2. Eliminate the polarization problem of rural-rural and rural-urban dividends by developing technology.
3. Repopulation of villages with small ethnic groups to protect their ethnic diversity.

In the poorly urbanized and specialized Balakan administrative region of Azerbaijan, there is a great need to establish such development models to keep the population in place.

A logistical and profitable system should be established for the growth of interest in agriculture in the villages of the region. Because agriculture is an area where there may be risks to income. Among such risks, we can show examples of events such as drought, hail, flood, etc., which

occur as a result of natural disasters. Therefore, to ensure food security in the area, the state should pay special attention to this area. Therefore, it is important to use a multisectoral approach method when building a rural development model, and we have taken this method into account. A multisectoral approach to the development of villages is not only related to the rural economy but also to other additional areas, such as tourism, industry, transport, etc. (Hodge and Midmore 2008). Considering the ethnic composition of the region, we suggest that the population's income and job opportunities should be based not only on agriculture but also on ethnic tourism. In such a scenario, new job opportunities can be created for young people in this field in the region. To some extent, this can prevent the migration of young people.

Although the development of villages is proposed based on SWOT analysis in the research work, the issues of "Smart village development" have not been considered in the region. It is known that the studied area is an area where the urbanization level is very weak, and there is a great need to develop villages based on the concept of technology and smart rural development in such regions. To conduct research in the field of creating smart villages in the research region, first of all, a diagnostic assessment should be carried out in the area, and a smart village development concept should be built on its basis. One of the other important issues to be investigated in the region is to find out to what extent the problems that have manifested themselves in the context of climate change in recent years affect the settlement of the population.

CONCLUSIONS

As a result of the conducted research, it became clear that the process of settlement polarization is underway in the research area, and this process manifests itself in the context of the creation of large rural agglomerations in some areas and the depopulation process in others. Along with the demographic factors, socioeconomic factors have played a significant role in such processes in the district. Demographic factors are mainly characterized by the intensification of migration processes; social and economic factors are mainly related to factors such as the inadequacy of social infrastructure and the income source of the population. There is a great need to carry out this research in the regions located in the border zone of the country, as well as in mountain villages. Because of the poor development of economic sectors in mountain villages and the intensity of difficulties in the social sphere, this process is going faster. ■

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