

Territorial organisation's originalities of the population of Ajara

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Abstract

Rational territorial organisation of the population mostly determines the normal social-economic development of any country, but the originality of the population's location in a separated region is related to some particular problems, which is clearly expressed in Ajara's example in Georgia. The topic is urgent from the point of view that the population in Ajara is located quite unevenly, which is related to economic and ecological problems. By applying traditional and modern methods of research in the work, the natural-geographical and social-economic factors of the territorial organisation of Ajara's population are studied. The quantitative and qualitative properties of a population's location are analysed according to administrative units, hypsometric steps, and agricultural lands. The influence of the original population location on the region's socioeconomic and ecological conditions is determined. Geographical originalities of the problems related to population location are determined, future development tendencies are evaluated, and optimisation paths are set.

Keywords: population, location, density, economy, ecology

Introduction

According to the demographic development point of view, Ajara is one of the most known and, at the same time, most densely populated regions in Georgia. In addition, the population location is quite uneven due to natural-geographic and socioeconomic factors. Therefore, the irrational territorial organisation of the population creates some particular problems for the region's socioeconomic development and ecological conditions. Coming out of this, the evaluation of the existing condition and the identification of problems constitute a quite urgent topic. The urgency of the topic is even enhanced by the fact that population location differs according to administrative units, hypsometric steps, and cultivated lands.

The main goal of the research is to determine the basic originalities of the population's location and related issues on the basis of the quantitative and qualitative properties of the population's territorial organisation. To implement the main goal of the research, the following tasks should be solved:

Determine the main reasons and originalities causing the population's territorial organisation;

Determine the population's average density according to administrative units, hypsometric steps, and agricultural lands;

Determine the originality of changes related to the population's territorial organisation, shape the issues connected to it, and set the paths for the population's rational location.

The study object is the autonomous Republic of Ajara, where in recent years, a number of originalities and problems have been related to the population's territorial organisation. Therefore, research conducted on a particular region's example would have cognitive and applicable significance as well.

Methods and Materials

To determine the territorial organisation of the population of Ajara, field research, statistical, comparative, space-time analysis, geoinformation, and other research methods were applied.

The foregoing research database is based on population censuses from 1989, 2004, and 2014, as well as statistical materials for population evaluation in 2022. In addition, theoretical materials related to the population's territorial organisation [1, 2, 3] and hypsometric data of populated areas of Ajara [4] were used.

Results

Natural conditions and socioeconomic factors have a crucial impact on the population's territorial organisation, location, and density. Population settlement in some particular areas is mostly related to a preferable natural environment, but this regularity more or less changes according to demographic processes, standard of living, and location of productive forces. Significant changes in the territorial organisation of the population of Georgia during the past 30 years were caused by political and

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demographic processes [5]. The territorial organisation of the population of a country from a regional point of view is quite different. Most regions have obviously shaped decreased tendencies in the population's average density, although the mentioned originality significantly differs in Ajara. In particular, mountainous Ajara has decreased, and the coastal regions have increased tendencies of population density. Therefore, to assess the existing conditions, it is necessary to first determine the qualitative indicators related to the population's location (see table 1; fig. 1).

Table 1. Average density of the population of Ajara according to administrative units in 1989-2022. Source: table is calculated on the basis of data after Geostat (table doesn't include data of Batumi City)

Administrative units	1989			2022		
	Area (sq. km)	Population (Thousand people)	Average density (People per sq. km)	Area (sq. km)	Population (Thousand people)	Average density (People per sq. km)
Ajara	2900	392,0	135	2900	355,5	123
Kobuleti	720	88,2	123	711,8	78,7	111
Khelvachauri	410	82,2	201	356,4	77,5	217
Keda	452	20,1	45	452	17,1	37
Shuakhevi	558	25,4	46	558	15,5	28
Khulo	710	39,6	56	710	27,9	39

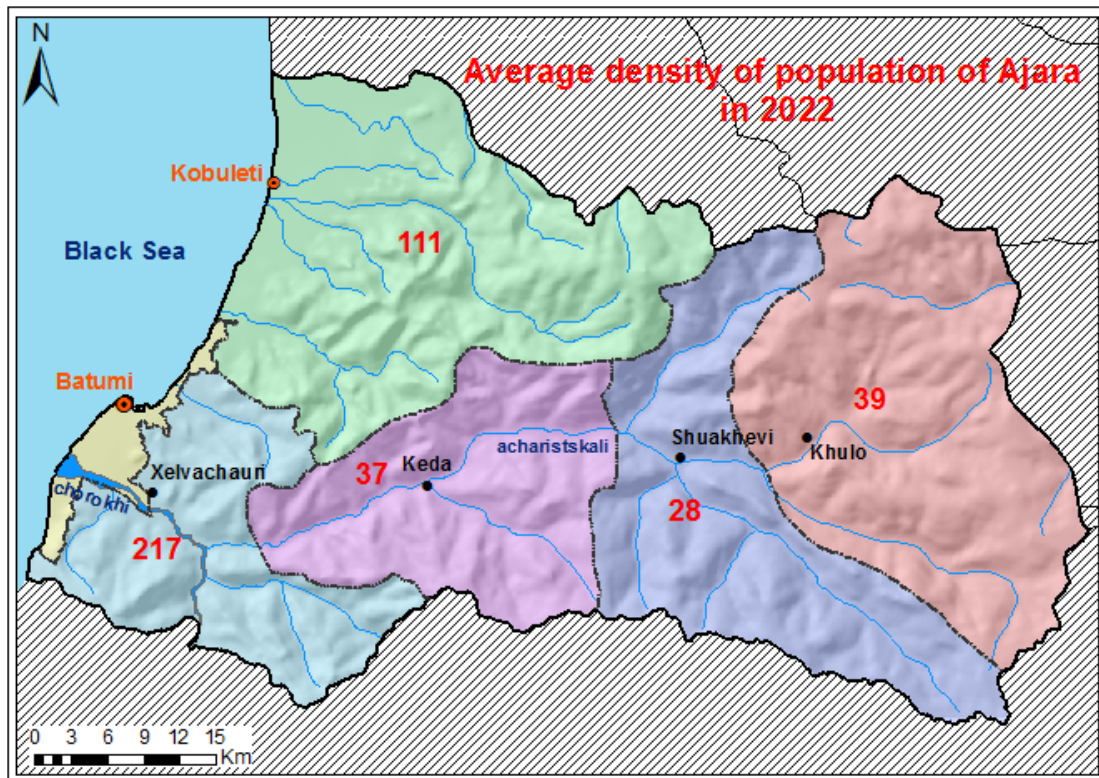


Figure 1. Average density of the population of Ajara according to administrative units in 2022

The given data (see table 1; fig. 1) make it clear that the population's average density during 1989–2022 in Ajara slightly decreased: 135 people per 1 sq. km in 1989 and 123 people per 1 sq. km in 2022. In addition, the mentioned indicators (except Khelvachauri Municipality) decreased in all

administrative units, especially in mountainous Ajara. Changes related to population location were mainly implemented due to demographic processes. In particular, the population of mountainous Ajara in 1989–2022 decreased from 85,1 thousand to 60,6 thousand. As a result of increased density in Khelvachauri Municipality, its territory was reduced due to administrative-territorial changes. In particular, two adjacent boroughs (Khelvachauri and Makhinjauri) and 13 villages were connected to Batumi. It should also be mentioned that the population of Batumi City is rapidly increasing (it was 136,5 thousand in 1989 and will become 173,7 thousand in 2022), and presumably, this pace will continue in the future as a large part of potential migrants prefer to settle in Batumi City [6]. Accordingly, an increase in density in village settlements due to the development of demographic processes is not expected.

To thoroughly determine the research goals, it is necessary to define the population's territorial organisation on the cultivated lands, which actually represents the quantitative property of economic density, via means of which the properties of anthropogenic load on the environment and its impact on ecological conditions will be determined (see table 2).

Table 2. Density of the population of Ajara in line with cultivated lands in 1989-2022. Source: The table is calculated on the basis of data after Geostat.

	1989			2022		
	Number of population (people)	Cultivated lands (Ha)	Density per 1 sq. km (people)	Number of population (people)	Cultivated lands (Ha)	Density per 1 sq. km (people)
Ajara	207619	33843	613	150600	22886	658
Kobuleti	55218	14452	382	42400	9876	429
Khelvachauri	74113	9531	778	52700	6768	779
Keda	19011	3815	498	15400	2454	628
Shuakhevi	20780	2713	765	14200	1570	904
Khulo	38497	3327	1156	25900	2218	1168

From the analysis of statistical data (see Table 2), it is found that village population density relating to cultivated lands in Ajara in 1989-2022 increased from 613 people per 1 sq. km to 658 people per 1 sq. km on average, while this indicator for all of Georgia equals 470 people per 1 sq. km. Notwithstanding the fact that the village population in Ajara during 1989-2022 decreased from 207,6 thousand to 150,6 thousand – density did not fall, it increased in all administrative units. The mentioned originality is caused by fact that the volume of cultivated lands decreased from 33843 ha to 24186 ha. A high anthropogenic load of cultivated lands promotes the activation of geodynamic processes and worsens ecological conditions. This topic becomes even more urgent in mountainous Ajara, the environment of which is known for its lower sustainability. Therefore, as a result of rational natural management, geodynamic processes are held more or less in every village, but up to 35 villages are located in the zone with a high level of threat from natural, geological processes [7]. Coming out of this topic, attention should be given to the population's rational territorial location, and business activity should be held by maintaining the basic principles of rational natural management.

Complex study of the topic requires determination of the originalities of the population's location according to hypsometric steps, which is clearly represented in Table 3.

Table 3. Location of the population of Ajara according to hypsometric steps in 2014. Source: The table is calculated on the basis of hypsometric data after Geostat and the populated areas.

Elevation (m above the sea level)	Area (sq. km)	Number of population (people)	Location of population	Population density
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			according the elevation (%)	(People per sq. km)
0 -200	394,4	256906	77,1	351
201 - 500	269,7	33717	10,1	125
501 - 1000	782,6	19083	5,7	24
Above 1000 m	1453,3	23494	7,1	16
Total	2900	333200	100	115

Table 3 shows that a large part of the population of Ajara (77,1%) lives at 0-200 m above sea level. Therefore, the number of populations decreases as the elevation increases. In particular, 10,1% of the population resides at 201-205 m elevation, 5,7% at 501-1000 m elevation and 7,1% at elevations more than 1000 m above sea level. Here, it should also be mentioned that the population at elevations greater than 1000 m above sea level is greater than the population residing at 501-1000 m elevation, which is because slopes are more inclined as the elevation increases, where the agricultural cultivable lands are more abundant. In recent years, the population in the lower zones has obviously increased but gradually decreased as the elevation increases. The mentioned originality is a common trend of the modern period, which is also confirmed in Ajara's example. As of population density according to hypsometric steps, the highest average density (351 people per 1 sq. km) is at 0-200 m elevation above sea level. Accordingly, density decreases as the elevation increases at a time, and there are only 16 men per 1 sq. m at elevations greater than 1000 m above sea level (see Table 3). The mentioned data are also situated from the fact that the upper limit of permanent settlement in Ajara is up to 1600 m.

A large part of the population of Ajara is concentrated in the coastal region, especially in urban areas. During this period, there were 2 cities (Batumi, Kobuleti) and 5 urban-type settlements (Chakvi, Ochkhauri, Keda, Shuakhevi, Khulo) in the region, where up to 204,8 thousand people lived by 2022, and the urbanisation level was 57.6%. A large part (84,8%) of the urban population lives in Batumi city, where the population by 2022 was 173,7 thousand people.

The territorial organisation of the population in modern cities is one of the challenges that creates some socioeconomic and ecological problems in urban areas. Batumi city is not an exception, where daytime and nighttime density quite differ. The population's average density or nighttime density in Batumi by 2022 was 2676 people per 1 sq. km. This indicator is the lowest in the Airport (337 people) and Gonio-Kvariati (459 people) administrative units. Therefore, high density is observed in the Bagrationi 1 (78045), Bagrationi 2 (74495) and Samretselo (73001) administrative units. The mentioned originality is caused by the fact that Airport and Gonio-kvariati constitute newly joined areas of the city, which are characterised by large areas and less population. The high density in the Bagrationi 1, Bagrationi 2 and Samretselo administrative units is caused by small areas, population numbers and architectural originalities. We have more different indicators in line with Batumi's population density during the daytime. In particular, the daytime density compared to the nighttime density is especially high in the local territories of the Boni (5194 people) and Aghmashenebeli (average 7624 people) administrative units, where large local markets are located. The density in the mentioned territory is approximately 15-20 times higher on average. In addition, Batumi's daytime density in the summer period is especially high in coastal recreational places. Increased noise and pollution are observed in the mentioned territories, and traffic jams are also observed therein. Normal living conditions are violated, and ecological conditions are worsened in the mentioned territories. Moreover, the mentioned problem increases the tendency progress, and it is possible that the situation becomes more aggravated. Solving the problems related to population location in Batumi constitutes one of the priority trends for a city's further development, which requires optimal spatial arrangement of social-economic activity and transformation of general development.

Conclusion

The following conclusions may be drawn on the basis of research on the territorial organisation of Ajara's population:

In recent years, the population's increase has been observed in coastal regions, and the population's decreasing tendencies have been sharply outlined in mountainous regions.

In 1989–2022, the average population density according to administrative units increased only in Khelvachauri municipality, but in the rest of them (especially in mountainous Ajara), it decreased.

In 1989–2022, village population density in line with cultivated land increased in all administrative units. This was implemented on account of the decrease in the mentioned lands.

The population's location, according to hypsometric steps, decreases as the elevation increases over time. In 2014, 77.1% of the population resided at 0-200 m above sea level;

Social-economic and ecological problems related to the population's location is outlined in Batumi and in all the administrative units as well, especially in mountainous Ajara.

To improve the existing condition, it is first necessary to foresee the population's rational territorial organisation in some particular administrative unit's spatial arrangement for the implementation of social-economic activity. In addition, to settle the problem, it is necessary to implement particular changes in a country's demographic policy in line with the optimisation of the population's location.

Competing interests

The author declares that there are no competing interests.

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