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## **Territorial development of social infrastructure of the Aktyubinsk oblast**

Article is devoted to study features of territorial development of social infrastructure of the Aktyubinsk oblast which has developed under the influence of formation process and development of territorial and branch structure of economy and system of resettlement of the population. Here at work is offered author's interpretation of the concept «social infrastructure». Using technique of the security assessment of the population with social objects offered by N.M. Logacheva, and was made attempt to define territorial differentiation on a levels of development of social infrastructure of the Aktyubinsk oblast in a section of administrative regions. On the basis of calculations of integrated indicators of security of the population with social objects counting on 1000 inhabitants and the level of development of social infrastructure is made map-scheme «Territorial differentiation of social infrastructure development of the Aktyubinsk oblast in 2015». As a result there were revealed level of social and infrastructure system and security of the population of administrative regions of the Aktyubinsk oblast with social objects development. Calculations and the comparative analysis have shown that the maximum level of development and high degree of security of the population with objects of social infrastructure is characteristic territories of the Aktyubinsk city administration, namely the Aktyubinsk agglomeration which is the center of concentration of the population and economic entities of the Aktyubinsk oblast. Uilskiy and Kargalinskiy districts have the lowest level of development of social infrastructure and security of the population with social institutions.

*Keywords:* Aktyubinsk oblast, social infrastructure, security of the population, territorial development, administrative regions.

### *Actuality*

In economical and geographical researches the concept of «infrastructure» is treated as set of constructions, buildings, roads and systems, i.e. the immobile part of fixed assets providing material conditions for normal reproduction process. It follows from this that infrastructure can't be moved from one region to another, only it is possible gradual development in borders of a certain space. Thanks to these properties infrastructure and all its components and elements become closely connected with the territory and with all processes of its economic development, forming the image of the territory [1].

Social infrastructure is a system of the branches located in a certain territory which perform various social functions (educational, improving, cultural, recreational) and the creating conditions for the effective territorial organization of society functioning.

Development of social infrastructure as complex of the branches and institutions providing normal activity of the population is the most important component of dynamic social and economic development of the region. Achievement of the high standard of living of the population isn't possible without formation and development of social and infrastructure base, satisfying needs of all inhabitants. But features of the territorial organization of economy and the population define spatial asymmetry in the level of development of social infrastructure and is as a result shown territorial distinctions in providing inhabitants with social facilities.

In turn negative aspects in development of social infrastructure have concrete manifestations: deterioration in a physical condition of material resources of social infrastructure; sharp recession of investments into non-productive construction; absence or small volumes of construction of social objects (schools, clubs, sports constructions, libraries); deterioration in living conditions (growth of a share of the shabby and hazardous dwelling); poor quality of medical and library care, cultural and entertaining service [2] that as a result influences territorial development of economy, resettlement and the standard of living of the population.

Relevance and the importance of an assessment of territorial development of social infrastructure of regions of the country is defined by implementation of state programs, in particular Programs of development of regions till 2020 [3]. Detection of features of a territorial differentiation of social infrastructure will allow to define the priority directions of development of the social sphere and promotes implementation of the Program of development of the territory of the Aktyubinsk oblast for 2016–2020 [4].

*Objects and methodology*

Object of a research is social infrastructure of the Aktyubinsk oblast. Observation was carried out on the basis of use of statistical data of Department of statistics, Department of education, Management of physical culture and sport, Management of culture, archives and documentation of the Aktyubinsk oblast for 2009–2015.

In a research were used methods of scientific abstraction, the analysis and synthesis, induction and deduction, analogy and comparison, system and logical approaches. Also were applied other methods of a research, comparative and geographical, mathematical, statistical, descriptive, cartographical.

The following system of indicators which is used in N.M. Logacheva [5] technique, taking into account available statistical information was applied to an assessment of an index of security of residents of administrative regions of the Aktyubinsk oblast with social infrastructure: number of the organizations of the sphere of culture; number of the preschool organizations; number of high comprehensive schools; quantity of objects of secondary professional education (colleges); number of sporting venues; number of the medical organizations. On everyone above to the listed indicator the index of security of the population with objects of education, health care, culture and sport was determined by the following formula:

$$IPSPSO = \frac{P_{co}}{Q_n} \times 1000, \quad (1)$$

where  $IPSPSO$  — is an index of security of the population with social objects counting on 1000 inhabitants;  $P_{co}$  — population;  $Q_n$  — quantity of social objects.

The integrated indicator of security of the population with social infrastructure counting on 1000 inhabitants decides on the help of a method which essence consists that on each index a certain territory gets points according to the following scale: I 0.001–0.006 — 1 point; I 0.010–0.029 — 2 points; I 0.031–0.078 — 3 points; I 0.080–0.097 — 4 points; I 0.124–0.577 — 5 points.

The assessment of territorial development of social infrastructure of the Aktyubinsk oblast was also carried out with use of the technique offered N.M. Logacheva [5], but with change of system of indicators. The assessment was carried out with use of the following 11 indicators: number of the medical organizations; number of recreation centers and clubs; number of libraries; number of the museums; number of movie theaters; number of recreation parks; number of the preschool organizations; number of high comprehensive schools; number of secondary vocational education institutions; quantity of higher educational institutions; number of sporting venues.

For reduction of 11 indicators in a comparable form as base are used corresponding data in general on area and it is calculated by a formula:

$$I_1 = \frac{I_{ar}}{I_o} \times 100\%, \quad (2)$$

where  $I_1$  — an indicator index;  $I_{ar}$  — an indicator of the administrative region;  $I_o$  — an oblast indicator.

The integrated indicator of the level of development of social infrastructure is determined on the basis of assignment of each territory by each index of points according to the following scheme: from 57.8 % to 33.3 % — 5 points; from 25.0 % to 14.0 % — 4 points; from 13.8 % to 11.0 % — 3 points; from 10.6 % to 5.0 % — 2 points; from 4.7 % to 2.6 % — 1 point; from 1.3 % to 0 % — 0 points. The territory having the greatest number of points is characterized by rather high rate of development of objects of social infrastructure [5].

*Results and their discussion*

Aktyubinsk oblast has the features in territorial development of social infrastructure as the oblast is characterized as a big area (300.6 thousand sq.km), low population density (as of the end of 2015 — 2.8 persons of 1 sq.km) [6; 5], asymmetry in economic development of the territory (Table 1).

For 2009–2014 in the territory of the Aktyubinsk oblast balance (minus wear) the cost of objects of social infrastructure has grown from 37,1 to 83,1 billion tenges [7; 16]. In all types of economic activity participating in process of providing social services to the population growth balance (minus wear) costs of supply available is observed. Among types of economic activity for 2009–2014 in the total cost of fixed assets of area the share of education, health care and social services increases, at reduction of a specific weight of art, entertainments and rest (Table 2).

Table 1

**Territorial differentiation of population density, production of the industry and agriculture of the Aktyubinsk oblast on states for 2015**

Name of administrative region	Population density of the people on 1 sq. km	Industry		Agriculture	
		Output of industrial output (goods, services), billion tenges	Specific weight in the total production of industrial output (goods, services) of area, %	Gross production (services) of agriculture in the current prices, billion tenges	Specific weight generally output volume of production (services) of agriculture of area, %
Territory of Aktyubinsk city administration	195,6	280,1	27,7	19,7	11,9
Alginskiy	5,4	6,0	0,6	16,8	10,2
Martukskiy	4,6	2,5	0,2	15,4	9,3
Kargalinskiy	3,5	1,5	0,1	12,4	7,5
Khromtauskiy	3,2	207,8	20,5	12,3	7,5
Temirskiy	3,0	103,1	10,2	12,3	7,5
Mugalzharskiy	2,4	292,3	28,9	13,6	8,2
Uilskiy	1,7	1,9	0,2	7,6	4,6
Khobdinskiy	1,4	1,5	0,1	12,4	7,5
Aytekebiyskiy	0,7	1,3	0,1	15,7	9,5
Shalkarskiy	0,6	12,4	1,2	10,3	6,2
Bayganinskiy	0,4	103,5	10,2	8,8	5,3
Irgizskiy	0,4	0,5	0,0	7,8	4,8
<b>Aktyubinsk oblast</b>	<b>2,8</b>	<b>1 011,9</b>	<b>100</b>	<b>165,1</b>	<b>100</b>

Note. Made by authors on [6; 24–133].

Table 2

**Change of specific weight of social infrastructure in structure of fixed assets of the Aktyubinsk oblast for 2009–2014 (%)**

Type of economic activity	2009	2014
Education	2,1	2,7
Health care and social services	0,7	1,8
Art, entertainments and rest	0,7	0,3

Note. Made by authors on [7; 16].

As for 2015 in the Aktyubinsk oblast carry out the activity and function 530 preschool institutions of education, 429 high comprehensive schools, 41 organizations of secondary professional education (colleges), 3 higher educational institutions, 940 sporting venues, 477 cultural institutions and recreation areas [8–10].

The assessment of security of residents of administrative regions of the Aktyubinsk region with social infrastructure was carried out on a formula (1).

Calculation of an index of security of the population with cultural institutions ( $I_c$ ) has shown that the population of Hobdinskiy and Martukskiy districts, in comparison with other administrative regions of area, are better provided with objects of the cultural sphere. The low indicator of security of the population with cultural institutions is characteristic to Irgizskiy and Temirskiy districts. The highest rate of an index of security of the population with the preschool organizations ( $I_{po}$ ) is traced in the territory of the Aktyubinsk city administration, and the minimum value is characteristic to Kargalinskiy district. The leader in an index of security of the population with high comprehensive schools ( $I_{hco}$ ) is the territory of the Aktyubinsk city administration, on the second place Mugalzharskiy district. The population of Kargalinskiy district concerning other 12 administrative regions are less provided with comprehensive schools. The index of security of the population with secondary vocational education institutions ( $I_{vei}$ ) is high in the territory of the Aktyubinsk city administration. On this indicator residents of Irgizskiy and Temirskiy districts are less provided. Inhabitants of the territory of the Aktyubinsk city administration are more provided with sporting venues that reflects the calculated index ( $I_{sv}$ ). The population of Bayganinskiy district has the minimum indicator of security with subjects to sports appointment (Table 3).

**Assessment of security of the population of administrative regions of the Aktyubinsk oblast with objects of social infrastructure counting on 1000 inhabitants in 2015**

Name of administrative regions	Indexes				
	I <sub>c</sub>	I <sub>po</sub>	I <sub>hco</sub>	I <sub>vei</sub>	I <sub>sv</sub>
Alginskiy	0,037	0,041	0,037	0,001	0,069
Aytekebiyskiy	0,049	0,051	0,036	0,001	0,049
Bayganinskiy	0,047	0,036	0,027	0,001	0,036
Irgizskiy	0,035	0,034	0,026	0,000	0,088
Kargalinskiy	0,037	0,021	0,020	0,001	0,040
Khobdinskiy	0,062	0,044	0,036	0,001	0,063
Martuskiy	0,052	0,046	0,040	0,001	0,081
Mugalzharskiy	0,049	0,063	0,052	0,003	0,071
Temirskiy	0,035	0,049	0,036	0,000	0,058
Uilskiy	0,046	0,027	0,027	0,001	0,041
Khromtauskiy	0,044	0,034	0,034	0,001	0,079
Shalkarskiy	0,041	0,066	0,044	0,001	0,071
Territory of Aktyubinsk city administration	0,040	0,124	0,099	0,035	0,403

Note. Calculated and made by authors on [8–11].

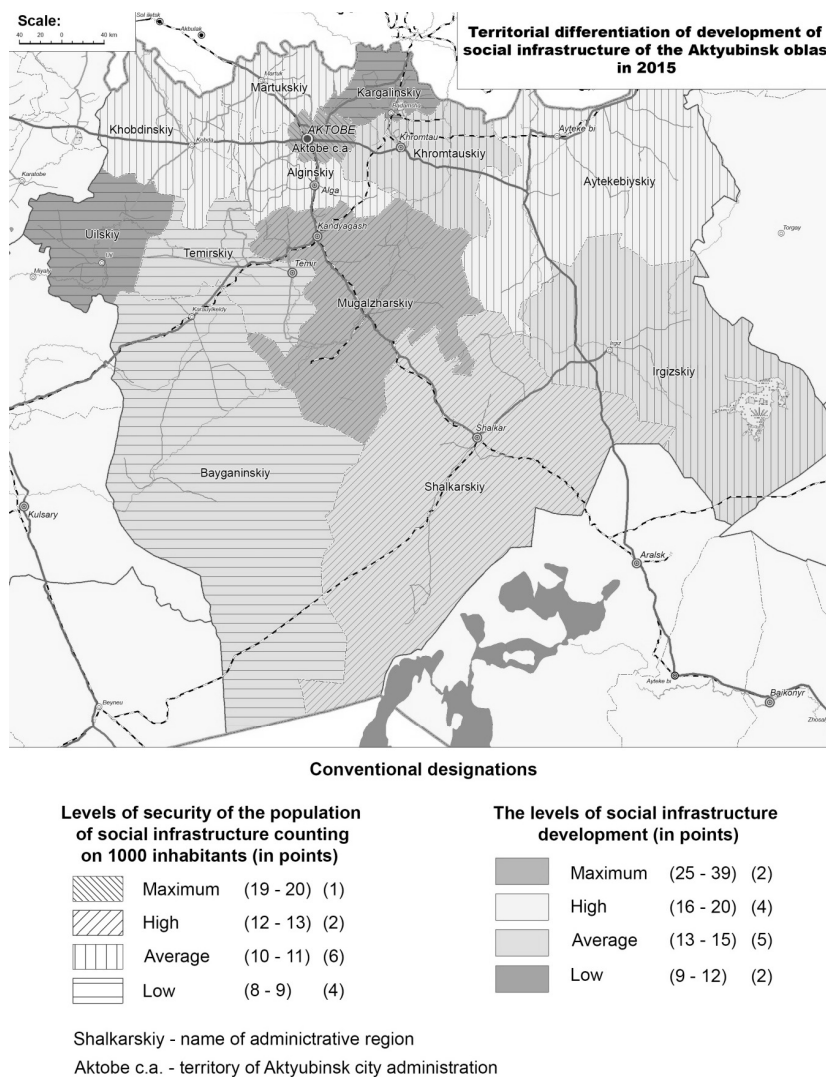


Figure. Territorial differentiation of social infrastructure development of the Aktyubinsk oblast in 2015. (made by authors on [8–11])

The integrated index has shown that inhabitants of the territory of the Aktyubinsk city administration it is better than other 12 administrative regions of area are provided with objects of social infrastructure. Mugalzharskiy and Shalkarskiy districts have the high level of security of the population with social infrastructure. The average level is characteristic to Martukskiy, Alginskiy, Aytekebiyskiy, Irgizskiy, Hobdinskiy and Khromtauskiy regions. The population of Bayganinskiy, Kargalinskiy, Temirskiy, Uilskiy regions have the lowest degree of security with social infrastructure counting on 1000 inhabitants (Fig.).

As an alternative the assessment of territorial development of social infrastructure of the Aktyubinsk region was also carried out with use of the technique offered N.M. Logacheva (2).

Calculations have shown that in the Aktyubinskiy oblast the territory of the Aktyubinsk city administration and Mugalzharskiy district have the maximum level of development of social infrastructure. The high rate of development of social infrastructure is characteristic to Alginskiy, Aytekebiyskiy, Khobdinskiy and Martukskiy districts. With average the level of development of social infrastructure characterizes the following administrative regions of area: Bayganinskiy, Shalkarskiy, Khromtauskiy, Irgizskiy, Temirskiy districts. The low level of development of social infrastructure are traced in the territory of Uilskiy and Kargalinskiy districts (Fig.).

### Conclusion

Thus, comparison of integrated indicators of security of the population counting on 1000 inhabitants and the level of social infrastructure development demonstrates that the territory of the Aktyubinsk city administration has the best indicator of territorial development of social facilities. The major factor defining rather high rate of social infrastructure development of the territory of the Aktyubinsk city administration is placement and development of the Aktyubinsk agglomeration, giving concerts 53,4 % of the population, 27,7 % of industrial and 11,9 % of agricultural production of area. On the level of development and security of the population with social infrastructure is allocated Mugalzharskiy region. The lowest level of development of social infrastructure and security of the population with social institutions is characteristic territories of Uilsky and Kargalinsky regions.

Now it is impossible to consider the developed social and infrastructure system of the Aktyubinsk region sufficient. The effective territorial organization of economy and the population of the Aktyubinsk region requires the further advancing development of social infrastructure taking into account needs of the population.

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## Ақтөбе облысының әлеуметтік инфрақұрылымының аумақтық дамуы

Мақала шаруашылықтың территориялық-салалық құрылымын және халықтың қоныстану жүйесінің қалыптасу мен дамуы үрдісі әсерінен пайда болған Ақтөбе облысының әлеуметтік инфрақұрылымының территориялық даму ерекшеліктерін зерттеуге арналған. «Әлеуметтік инфрақұрылым» түсінігіне авторлық анықтама ұсынылды. Н.М. Логачеваның халықтың әлеуметтік нысандармен қамтамасыз етілуін бағалау әдістемесін қолдана отырып, әкімшілік аудандар деңгейінде Ақтөбе облысының әлеуметтік инфрақұрылымының даму деңгейі бойынша территориялық дифференциациясын анықтауға әрекет жасалды. 1000 тұрғынға шаққанда әлеуметтік нысандармен қамтамасыз етілуінің интегралдық көрсеткіштерін есептеу негізінде және әлеуметтік инфрақұрылымның даму деңгейін анықтау бойынша «2015 ж. Ақтөбе облысының әлеуметтік инфрақұрылымы дамуының территориялық дифференциациясы» атты карта-сызбасы құрастырылды. Нәтижесінде Ақтөбе облысы әкімшілік аудандары халқының әлеуметтік нысандармен қамтамасыз етілуі мен әлеуметтік-инфрақұрылымдық жүйесінің даму деңгейі анықталды. Есептеулер мен салыстырмалы талдау көрсеткендей, халықтың әлеуметтік инфрақұрылым нысандармен қамтамасыз етілуінің жоғары дәрежесі мен дамуының максималды деңгейі Ақтөбе қалалық әкімшілік территориясына, атап айтқанда, Ақтөбе облысының шаруашылық субъектілер мен халықтың шоғырлануының орталығы болып табылатын Ақтөбе агломерациясына тиесілі. Ойыл және Қарғалы аудандары әлеуметтік инфрақұрылымның дамуы мен халықтың әлеуметтік мекемелермен қамтамасыз етілуінің көрсеткіші бойынша төмен деңгейге ие.

*Кілт сөздер:* Ақтөбе облысы, әлеуметтік инфрақұрылым, тұрғындардың қамтамасыз етілуі, аумақтық дамуы, әкімшілік аудандар.

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## Территориальное развитие социальной инфраструктуры Актюбинской области

Статья посвящена изучению особенностей территориального развития социальной инфраструктуры Актюбинской области, которая сложилась под влиянием процесса формирования и развития территориально-отраслевой структуры хозяйства и системы расселения населения. В работе предложена авторская трактовка понятия «социальная инфраструктура». С использованием методики оценки обеспеченности населения социальными объектами, предложенной Н.М. Логачевой, предпринята попытка определить территориальную дифференциацию по уровню развития социальной инфраструктуры Актюбинской области в разрезе административных районов. На основе расчетов интегральных показателей обеспеченности населения социальными объектами в расчете на 1000 жителей и уровня развития социальной инфраструктуры составлена картосхема «Территориальная дифференциация развития социальной инфраструктуры Актюбинской области в 2015 г.». В результате выявлен уровень развития социально-инфраструктурной системы и обеспеченности населения административных районов Актюбинской области социальными объектами. Расчеты и сравнительный анализ показали, что максимальный уровень развития и высокая степень обеспеченности населения объектами социальной инфраструктуры характерны для территории Актюбинской городской администрации, а именно Актюбинской агломерации, которая является центром концентрации населения и хозяйствующих субъектов Актюбинской области. Уилский и Каргалинский районы имеют самый низкий уровень развития социальной инфраструктуры и обеспеченности населения социальными учреждениями.

*Ключевые слова:* Актюбинская область, социальная инфраструктура, обеспеченность населения, территориальное развитие, административные районы.

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