Quality of life as a dominant of increasing life security in the region (as exemplified by Irkutsk oblast)

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Abstract. Assessment relevance of the social security of population in situation of low standards of living and life quality is of paramount importance. The article examines the quality of life of the population as a dominant of increasing the social security of the region. We analyzed the quality of life according to the main living environments of the population and the parameters of its public health as exemplified by Irkutsk oblast for 2005 and 2018. All heterogeneous indicators are given in one measurement system – a rating, where the positions of Irkutsk oblast are determined in comparison with other constituent entities of the Russian Federation and regional trends are identified. The method of indicative analysis was used as an additional method. The assessment showed that the main macroeconomic indicators the region is in the top twenty ratings of leading regions among the subjects of the Russian Federation over the period under review. By the main parameters of the living standards Irkutsk oblast significantly worsened its position by 2018 and entered the top twenty outsider regions. By the level of environmental pollution, the region also belongs to the outsider regions, consistently occupying the last places in the rating. The cumulative impact of environmental quality is reflected in low level of public health. Within the framework of social security of population, we identified several threats: high level of poverty and unemployment, morbidity and mortality.

1. Introduction
According to the “National Security Strategy of the Russian Federation”, approved by the Decree of the President of the Russian Federation of December 31, 2015 No. 683, one of the main priority trends is to improve the quality of life of Russian citizens. The quality of life of the population is understood as a broad, multidimensional, integral concept, the base for which is environmental conditions, and the superstructure is their perception by a human (subjective and objective state of health under given environmental conditions). The issues of improving the quality of life are related to social security. As an integral part of national security, social security is ensured by social policy measures aimed at preventing risks and threats to society. The following social risks and threats are highlighted: low standard of living (different level of well-being in the regions, high social differentiation of the population, etc.) and demographic risks (mortality, migration, low life expectancy, etc.).

Quality of life and social security are two interrelated, inseparable categories. Social security is a condition for ensuring an increase in the well-being of the population and improving the quality of its life [1]. The quality of life serves as an indicator of social security. Diagnostics of the quality of life using selective comprehensive monitoring the living conditions of the population is a necessary stage in assessing the effectiveness of social policy pursued by the state. Systematic analysis and
Improvement actions for the population's life support will contribute to the improvement of social policy. Thus, the quality of life of the population is considered as the dominant of its improvement within the framework of social security.

With a low level and quality of life, the relevance of assessing the social security of population is of paramount importance. Diagnostics of the quality of life within the framework of social security in areas with heterogeneous climatic, ecological, socio-economic conditions is especially relevant. One of these regions is Irkutsk oblast, where 2.4 million people live as of 01.01.2018.

2. Materials and methods
The quality of life was analyzed in two blocks from the standpoint of public geography: environmental quality and the quality of the population (or public health). In the block “environmental quality” we considered the main living environment of the population: socio-economic and ecological. All dissimilar indicators were combined in one measurement system – rating. The rating is a universal tool that carries out the primary classification of the socio-economic processes and objects in a certain period of time. This method determined the place of Irkutsk oblast among all subjects of the Russian Federation (RF), and in dynamics helped us to identify regional development trends. As an additional method, we used the method of indicative analysis, which includes comparison with threshold values, going beyond which indicates a threat to the life of the population [2-6]. Exceeding the threshold (or extremely critical) value of the unemployment rate (4-5%) in the region indicates, for example, an increase in socially disadvantaged categories of the population who are at risk of poverty. The share of the population living below the poverty line (higher than 7-10%) indicates a lumpenization of the population and the average life expectancy (less than 75-80 years) about a decrease in the viability of the country, etc.

To identify trends in the quality of life of the population, the indicators were considered in dynamics – for 2005 and 2018. The rating was carried out among 82 subjects of the Russian Federation (with the exception of the city of Sevastopol, the republics of Crimea and Chechnya due to the lack of data for 2005). The sources of information were Rosstat data [7-9].

3. Results and discussion
Irkutsk oblast has significant natural resource potential (NRP), including mineral resources (natural gas, oil, gold, coal, iron ore, etc.), forestry, hunting and fishing, hydropower, etc. [10]. As a region with a high potential for economic development, oblast retains its position as the supporting economic territory of Siberia.

3.1. Socio-economic development
Gross Regional Product (GRP) as the main indicator of economic activity shows the total amount of income received by the region's economy in the production process. Irkutsk oblast is one of the twenty regions with a high GRP level (18th (2005) and 15th (2017) positions in the rating). Compared to 2005, the growth rate of the region's indicator increased by 4.6 times in 2017. The main share in the GRP of Irkutsk oblast is occupied by the mining and manufacturing industries. GRP per capita also has a positive trend: if in 2005 the exceedence of average values of the Russian Federation over Irkutsk oblast was 1.2, then in 2017 the values were almost equal, which affected its movement in the ranking – from 29th to 20th place (table 1).

Other, no less important macroeconomic indicators keep the region in the twenty leading regions among the constituent entities of the Russian Federation, namely, investment in fixed assets, profitability of enterprises, etc. In addition, oblast retains its relative self-sufficiency – the share of own revenues in the consolidated budget is more than 80%.

The living standard of population depends on the economic development of the region and implementation of social policy. The most important characteristic of the standard of living is the monetary income of the population. In Irkutsk oblast in 2005 and 2018, 46.6 and 43.3% of income respectively was concentrated in the 20% of the population with the highest incomes (in the Russian
Federation, 46.4 and 47.1%, respectively). The share of 20% of the population with the lowest incomes in the region accounted for 5.4% and 6.4% of their total volume (in the Russian Federation, 5.5 and 5.3%, respectively). The value of the fund ratio, determined by the ratio of the average level of monetary incomes of 10% of the population with the highest incomes and the average level of incomes of 10% of the population with the lowest incomes, fell in Irkutsk oblast from the factor equal to 15.0 in 2005 to 11.2 in 2018 (in the RF, on the contrary, it increased from 14.8 to 15.6), but the region did not reach the threshold value (the factor equal to 7-8). Simultaneously with a decrease in the degree of social differentiation in Irkutsk oblast, there is also a decrease in the income concentration ratio: from 0.407 to 0.367 (in the Russian Federation the value of the Gini coefficient, on the contrary, increased from 0.405 in 2005 to 0.413 in 2018).

Table 1. Characteristics and rating of Irkutsk oblast by the main parameters of the quality of life of population in 2005 and 2018.

| Indicators                                                                 | Irkutsk oblast | RF          |
|---------------------------------------------------------------------------|----------------|-------------|
| 1. Socio-economic development:                                            |                |             |
|   1. Gross regional product per capita, RUB                               | 102904.0       | 125658.7    |
|   2. Number of population with monetary incomes below the subsistence level, as a percentage of the total population of federal subject | 21.3           | 17.8        |
|   3. Unemployment rate, %                                                 | 9.8            | 7.1         |
| 2. Ecological state:                                                      |                |             |
|   1. Emissions from stationary sources, thou t                            | 502            | 20400       |
|   2. Discharge of contaminated wastewater into surface water bodies, mln. m³ | 814            | 17727       |
|   3. Waste production and consumption, thou t                            | 80314          | 3519427     |
| 3. Public health:                                                        |                |             |
|   1. Morbidity diagnosed for the first time, per 1000 population          | 833.9          | 743.7       |
|   2. Infant mortality rates, number of children died before the age of 1 year, per 1000 live births | 12.5           | 11          |
|   3. Mortality of population of working age, number of deaths per 100 thou people of the corresponding age | 1188.8         | 827.8       |

At the same time, the growth of the per capita money income of population from 2005 to 2018 in the RF was 4 times, in Irkutsk oblast – 3.4 times. As a result, the ratio of the region's income to the income of the RF in 2005 was at the level of 88%, in 2018 – already 74%. The purchasing power of the per capita money income of population is also lower than the threshold quantity (3.5 fold) and the
average Russian values: in 2005 – 2.4 times (Irkutsk oblast) and 2.6 times (RF), in 2018 – 2.3 and 3.3 times, respectively. Since 2005, in Irkutsk oblast, as well as in the country as a whole, there has been a tendency to reduce the level of poverty, but both the RF and oblast have not reached the threshold value (7-10%) (table 1). At the same time, if in 2005 the population with a money income below the subsistence minimum of the region exceeded the average value of the Russian Federation by 1.2 times, then in 2018 the excess was already 1.4 times. The positions of Irkutsk oblast in the ranking also worsened.

The unemployment rate is a socio-economic phenomenon that from an economic point of view shows the ineffective use of productive forces (or labor force) and from social, leads to an aggravation of social problems and social tension in society [11]. The problem of unemployment is also urgent for Irkutsk oblast. Despite the decline in 2018, the unemployment rate has not reached the socially acceptable level (4-5%). In the ranking of 2005 and 2018, oblast ranks 66 and 67 among the subjects of the RF (table 1).

3.2. Ecological state

Irkutsk oblast is an industrial region; the largest enterprises located here are as follows: heat power engineering, oil refining, chemical and petrochemical, nonferrous metallurgy, timber, woodworking and pulp and paper, light and food industries.

Emissions from stationary sources, which have an impact on public health, are indicators characterizing the ecological situation in the constituent entities of the Russian Federation. Irkutsk oblast is distinguished by a high level of atmospheric pollution (3.8% of the total volume in the Russian Federation for 2018). The cities of Angarsk, Bratsk, Zima, Irkutsk, Svirsk, Usolye-Sibirskoye, Shelekhov and Cheremkhovo, where 60% of the region's population live, are periodically included in the Priority list of cities with the highest level of air pollution. In the rating for the period under review, the region steadily ranks last (table 1), inferior to large industrial centers (Kemerovo and Sverdlovsk regions, Krasnoyarsk krai, etc.).

The second environmental indicator is the discharge of polluted wastewater into surface water. In Irkutsk oblast 76.9% of the water volume used account for production needs. The enterprises of the fuel and energy complex, chemistry and petrochemistry, metallurgical production, woodworking and pulp and paper production, which have water-intensive technologies, discharge wastewater into surface water bodies. Irkutsk oblast (4% of the total wastewater discharge in the Russian Federation) takes the 76th place among other regions, slightly improving its position compared to 2005 (79th place) by the pollution volume (table 1). The reason is a decrease in the discharge of polluted wastewater, which has decreased by 1.5 times by 2018. At the same time, in 2018 59.3% (or 527 mln m³) of polluted waters from the total volume of discharged wastewater entered surface water bodies, 19.7% of which were without treatment and 80.3% were insufficiently treated.

One of the important problems in the country is formation of production and consumption waste. This problem remains acute in Irkutsk oblast – 2.2% of the total waste volume in the Russian Federation. In the region, 99.9% is industrial waste, more than 90% of which is waste from mining. Waste production and consumption increased 1.7 times in the region. However, the region's positions in the rating improved by 3 points (table 1).

3.3. Public health

Health standard of population and its demographic characteristics are significant parameters of public health. The indicators depend to a large extent on the climatic, socio-economic, ecological conditions and reflect the degree of comfort for these conditions for the normal life of people.

The most important component of health standard is morbidity (considered is the morbidity of the population with a diagnosis established for the first time in life). In 2018, the morbidity rate in Irkutsk oblast exceeded the national average by 1.2 times (table 1). 2005 to 2018 in the region there was an increase in the population morbidity – by 1.2 times, which affected its shift in the rating: from the 58th position to the 71st.
The health status of a society has direct influence on mortality rate. Infant mortality is one of the basic demographic indicators that make up mortality of population and vividly reflects the economic and social changes taking place in the country. In the Russian Federation, the indicator decreased by 2.2 times for 2005 and 2018 was, in the Irkutsk region – 1.8 times. Despite the decrease in infant mortality, the region worsened its position in the ranking (from 57th to 75th place) and, in contrast to the Russian Federation, did not reach the threshold value of the indicator (5.0 people / 1000 births).

One of the main signs of medical and social deprivation in the country is high mortality rate of the population of working age. During the period under consideration, mortality rate tended to decrease both in the Russian Federation (by 1.7 times) and in Irkutsk oblast (by 1.8 times), but it is still above the critical value (300 pers/100 000 pers of working age). Irkutsk oblast, despite the decrease in mortality, worsened its position in the ranking, moving from 74th to the 77th place.

One of the most important integral demographic indicators, which reflects the health status, mortality rate and social well-being of the population, is the life expectancy (LE). In Irkutsk oblast the growth of life expectancy was 9 years (60.32 years in 2005 and 69.31 years in 2018), but the region did not reach the threshold value (75-80 years). The position of Irkutsk oblast in the ranking among the entities of the Russian Federation has practically not changed: 76th and 77th places in 2005 and 2018, respectively.

4. Conclusion

Thus, the rating of the quality of life of the population showed that Irkutsk oblast belongs to the outsider regions taking into account the socio-economic, environmental indicators and the level of public health. The inconsistency of social parameters with economic development is clearly traced in oblast during the period under consideration, moreover there is a high level of environmental pollution, which is reflected in low indicators of public health and aggravates the inequality of population of the region in comparison with other constituent entities of the Russian Federation. The ranking by the quality of life enabled identifying not only trends, but also the most acute problems in the region that pose social threats within the framework of social security: persistence of a high level of poverty and unemployment, poor health, and high mortality.

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References

[1] Korytnyi L M, Bashalkhanova L B, Veselova V N and Bashalkhanov I A 2015 Resource and climate factors for the provision of social protection in Siberia's northern territories Geogr. Nat. Resour. 36(4) 375-82
[2] Senchagov V K, Maximov Yu M, Mityakov S N and Mityakova O I 2011 Innovative transformations as an imperative of economic safety of region: system of indicators Innovations 5(151) 56-61
[3] Glazyev S Yu and Lokosov V V 2012 Estimation of the extremely critical indicators of the Russian society condition and their application in managing the socio-economic development Herald of the Russian Academy of Sciences 7(82) 587-604
[4] Kuklin A A, Shipitsyna S E and Naslunga K S 2016 Comparison of the efficiency of budget financing and the social security of a region Economy of Region 12(3) 638-53 DOI 10.17059/2016-3-3
[5] Kalina A V and Saveleieva I P 2014 Formation of threshold values of the economic security of Russia and its regions Bulletin of the South Ural State University Series "Economics and Management" 8(4) 15-24
[6] Loginov K K, Korableva A A and Karpov V V 2018 Economic security of the Siberian federal district regions *The Science of Person: Humanitarian Researches* 1(31) 141-50 DOI 10.17238/issn1998-5320.2018.31.141

[7] Regions of Russia: Socio-Economic Indicators. 2019: Stat. Col. 2019 (Moscow: Rosstat) p 1204

[8] Environmental Protection in Russia. 2018: Stat. Col. 2018 (Moscow: Rosstat) p 125

[9] Demographic Yearbook of Russia 2019 Stat. Col. 2019 (Moscow: Rosstat) p 252

[10] Savelieva I L, Korytnyi L M and Bashalkhanova L B 1998 Natural-resources potential of Irkutsk oblast *Region* 2 69-77

[11] Garunova A V, Lugueva A S and Kurbanova F F 2018 Unemployment in Russia as a socio-economic phenomenon *Regional Problems of Transforming the Economy* 12 242-50