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**FEATURES OF SPATIAL DEVELOPMENT OF THE
AGROINDUSTRIAL COMPLEX OF KRASNOYARSKY KRAI**

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Abstract

The rural population decline, decrease birthrate and income of the rural population, the continued dependence of the Krasnoyarsk Krai on the import of a number of food products are the result of irrational distribution and development of agriculture. Some of the key reasons for the listed problems are: irrational, incomplete use of natural and climatic, socio-economic prerequisites for the location and development of enterprises of the agro-industrial complex in the region; insufficient attention to the formation of rational specialization and division of labor, economic ties between territories. The absence at the regional level of territorial strategic planning for the location and development of agro-industrial enterprises and the settlement of the rural population worsen the economic development of a territory in generally. An attempt is made to form a conceptual view of the prospects for the spatial development of the agro-industrial complex of the Eastern macro-region of the Krasnoyarsk Krai. The research results were proposals for the selection of specialized agricultural zones that have the potential for the production and export of products in demand on the foreign market.

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1. Introduction

Agriculture is one of the priority economic sectors of the Krasnoyarsk Krai. Its development contributes to solving issues of preserving the socio-cultural, demographic potential of the region, strengthening its food security. The high rate of urbanization in the Krasnoyarsk Krai has negatively affects for saving the traditional style of population life, craft competencies, birth rates, family values, also the ecological situation in the region. The development of market relations, the rapid urbanization of recent years lead to the desolation of rural areas, uneven distribution of the population across the region, a decrease in labor potential and the efficiency of using the agro-climatic potential of the territories. One of the most important for ensuring food security of the Krasnoyarsk Krai is the agro-industrial complex of its Eastern macro-region. Geographically, the Eastern macro-region of the Krasnoyarsk Krai includes administrative territories: Abanskiy, Dzerzhinskiy, Irbeisky, Kanskiy, Nizhneingashskiy, Partizanskiy, Rybinskiy, Sayanskiy, Taseevskiy, Uyarskiy, urban districts (the city of Kansk, the city of Borodino).

Foreign researches are devoted to the study of the theoretical and methodological foundations for choosing the concept of spatial distribution and development of the productive forces of the agro-industrial complex (Achten, 2020; Boudevill, 1966; Lesh, 1959; Perrous, 1961; Porter, 1990; Thunen, 1926) and Russian scientists-regionalists (Altukhov, 2018; Bandman, 1980; Karyagin, 2013; Nekrasov, 1978; Koloskova et al., 2020; Kistanov, 1981; Silaeva, 2016; Yakobson & Yakobson, 1987; Zinina et al., 2020). At the same time, the theoretical and methodological aspects of the formation of state program for the spatial distribution of the productive forces of rural areas in a market economy have not been sufficiently developed.

In particular, the importance of the rational distribution of the productive forces of the agro-industrial complex in the interests of uniform, differentiated development of rural areas, harmoniously taking into account their natural, climatic and social characteristics, is underestimated by local and federal authorities. It is also necessary to develop special strategic planning systems that adequately take into account the nature and factors of sustainable development of rural areas (Tsvettsykh & Shevtsova, 2020), which will improve the efficiency of regulation of the spatial development of agriculture.

2. Problem Statement

2.1. Improving the practice of territorial planning for the spatial development of agriculture in a market economy

In the USSR, there was a practice of strategic planning of the spatial development of agriculture in the region based on the definition of specialized zones of agriculture, the development of schemes for the location of agricultural enterprises and comprehensive state regulation of their development. This practice made it possible to quickly and efficiently develop the territory. Currently, this practice has been lost. In this regard, the lack of practice of state regulation of the spatial development of agriculture on the basis of taking into account the agro-climatic potential of the territories has led to the loss of access for a number of local products to regional markets, a decrease in the standard of living of the population of rural areas.

2.2. The need for practical implementation of the concept of uniform, differentiated development of rural areas

Sustainable development of rural areas in a market economy is possible only on a scientific basis, which involves taking into account and comprehensive use of the natural-climatic, socio-economic and transport-geographical prerequisites for the specialization of territories, their active involvement in the process of intraregional division of labor. The solution to this problem should contribute to an increase in the efficiency of state regulation of the development of rural areas of the region, in particular the Eastern macro-region of the Krasnoyarsk Krai.

3. Research Questions

Research of the socio-economic indicators of agricultural development in the municipal districts within the Eastern macro-region of the Krasnoyarsk krai.

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4. Purpose of the Study

The study purpose was the selection of socio-economic, natural and geographical preconditions choice of specialized agricultural areas of the Eastern Territorial District of the Krasnoyarsk krai for sustainable development of rural areas.

Description of the list of specialized agricultural production zones within the Eastern macro-region

- Determination of economic and geographical features of the municipal districts of the Eastern macro-region of the Krasnoyarsk krai.
- Determination of the agroclimatic features of the municipal districts of the Eastern macro-region of the Krasnoyarsk krai.

5. Research Methods

In determining the choice of specialization prerequisites agricultural areas east territorial area of Krasnoyarsk krai were used statistical research methods.

In determining the choice of specialization prerequisites agricultural areas east territorial area of Krasnoyarsk krai were used mapping methods of physical and geographical and economical regionalization.

- Methods of physical and geographical research on the peculiarities of the natural zones east territorial area.
- Economic and geographical zoning methods have determined the characteristics of the market zone.

6. Findings

The next stage of the study was the analysis of the economic-geographical and agroclimatic features of the municipal territories of the Eastern Macro-region of the Krasnoyarsk krai. The result of this stage was the substantiation of the composition of specialized agricultural production zones (growth centers) within the Eastern macro-region.

In Table 1 the climatic and soil characteristics of the territories of the Eastern Macro-region are systematized. Its administrative boundaries have defined the outline of the boundaries of the Eastern agro-industrial zone of the Krasnoyarsk krai. Their analysis made it possible to substantiate the composition of specialized agro-industrial zones.

Table 1. Features of the Eastern agro-industrial zone

| The name and territorial composition of the zone | Natural, climatic and soil features | Promising areas of agricultural specialization |
|--|--|--|
| Taseevsko-Kansk subzone (north and center of the zone) | In the north of the zone is dominated by coniferous forests. In the north and east of the zone - podzolic, sod-podzolic soils. | In the north and center: a specialized reforestation zone after deforestation on an industrial scale, as well as seasonal harvesting of mushrooms, berries, medicinal plants, etc. |
| Abansko-Rybinsk-Kansk subzone (center of the zone) | In the center - the transition from the forest-steppe to coniferous and deciduous forests (Taiga), soils are sod-podzolic. | In the center: a specialized zone of vegetable growing and dairy and beef cattle breeding. |
| Sayan subzone (south zone) | In the south is a presence on the territory of a large zone of forest-steppe and fertile soils. | In the south: a specialized zone of reforestation after fires and deforestation on an industrial scale, as well as seasonal harvesting of mushrooms, berries, medicinal plants, etc. |

The territories of the Eastern agroindustrial zone are characterized by the spread of insular forest-steppe, woodlands, the predominance of a relatively short hot summer, long winter, and frequent temperature changes. The prevalence of podzolic and soddy-podzolic soils creates favourable preconditions for the specialization of rural areas in dairy and beef cattle breeding based on their own fodder base. The listed types of specialization have the prerequisites for sustainable nature management, have export potential, differentiated development of rural areas.

The analysis of socio-economic indicators of the development of agriculture municipal districts of the eastern territorial district of the Krasnoyarsk krai was based on the use of the statistical base of municipalities of the Krasnoyarsk Territory, prepared by the Federal State Statistics Service. The growth rates of the selected indicators were calculated based on the official statistical materials and the results are systematized in Table 2.

Table 2. Socio-economic indicators of the development of municipal districts within the Eastern macro-region of the Krasnoyarsk krai

| Socio-economic indicators | 2010 | 2015 | 2019 | Growth rates, % | |
|--|-----------|-----------|-----------|-----------------|-----------|
| | | | | 2015/2010 | 2019/2015 |
| Average annual resident population, persons | 207653 | 191649 | 183119 | -7.71 | -4.45 |
| Migration gain, persons | -1619 | -1191 | -1212 | -26.43 | 1.76 |
| Number of births, persons | 4610 | 4215 | 3118 | -8.56 | -26.02 |
| Sown area of crops in farms of all categories, hectares | 363959.44 | 374171.48 | 413104,73 | 2.80 | 10.40 |
| Agricultural production (crop production, animal husbandry), thousand rubles | 8880376 | 15220854 | 16049134 | 71.40 | 5.44 |

Analysis of socio-economic information on the municipal districts within the Eastern macro-region of the Krasnoyarsk krai showed the following results:

- in the period from 2010 to 2015, the largest decrease in the average annual resident population occurred in Aban (-14.76%), Sayan (-11,72%) and Nizhneingash (-11.47%) municipal districts, also in the period from 2015 to 2019 in Taseevsky (-6.84%), Nizhneingashsky (-5,53%), Aban (-4.76%) municipal districts, which will negatively affect the labor and consumer potential of these territories;
- the largest decrease in the average annual resident population of the Eastern macro-region occurred in the period from 2010 to 2015;
- in the period from 2010 to 2015, the highest rate of population outflow was observed in Aban (+8.43%), Dzerzhinsky (+26.13%) and Nizhneingash (+27.78%) municipal districts, and in the period from 2015 to 2019 in Kansk (+97.82%), Rybinsk (200%) municipal districts, which will negatively affect the labor and demographic potential of these territories;
- the highest rate of migration growth of the population of the regions of the Eastern Territorial District occurred in the period from 2010 to 2015.
- in the period from 2010 to 2015, there was a drop in the birth rate (-7.71%), the largest drop in the birth rate occurred in the Irbei municipal district (-26.64%), in the period from 2015 to 2019 the decline in the birth rate in all municipal districts accelerated (-26.02%), the greatest acceleration in the decline in fertility occurred in the Partizansky municipal district (-35.50%);
- in the period from 2010 to 2015, the sown area of agricultural crops in farms of all categories increased by 2.80% (or by 10 212 hectares), and in the period from 2015 to 2019 by another 10.40% (or by 38 933 hectares), the largest increase in the sown area of agricultural crops in the period from 2010 to 2015 was noted in the Rybinsk municipal district (27.28%), and in the period from 2015 to 2019 in the Uyarsky municipal district (43.18%);
- for the entire research period, there is an increase in agricultural production, in the period from 2015 to 2019 the rate of increase in production slowed down (from 71,40% in the period 2010-2015 to 5,44% in the period 2015-2019).

7. Conclusion

It is necessary to develop a regional scheme for territorial-sectoral planning of the agro-industrial complex within Krasnoyarsk krai. Also, it's detailing in the form of territorial-sectoral planning schemes for macro-regions of the Krasnoyarsk krai.

The concept of spatial development of the agro-industrial complex within the Eastern macro-region of the Krasnoyarsk Territory involves the development of specialized zones in the region, the development and implementation of basic investment projects for them by the state and the business community.

Take into account the agro-industrial zones features should be the basis for the development of specific organizational and economic mechanisms of regulation and spatial distribution of the productive forces of agriculture.

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