

Food security of sustainable development of rural territories

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Abstract. In modern regional development, food security remains a critical global problem, the solution of which dictates the need for a comprehensive approach to the assessment of factors modelling the situation. The high dependence of food markets on the geopolitical situation in the countries that produce agricultural raw materials makes it necessary to search for new suppliers and new ways to increase production. Countries with predominantly agricultural specialization of regions are now getting an opportunity to occupy the vacated market niches and enter the world food markets. It becomes obvious that there is a new round of interregional interaction and establishment of trade relations between producers and suppliers of agricultural products, as well as the development of new agro-food systems.

1 Introduction

Modern agri-food systems are under high pressure from environmental factors, transforming sustainable agro-cenoses and value chains. Geopolitical shocks in 2021-2023 are further modelling the evolution of commodity market dynamics, poverty rates and household welfare. Many countries face the challenge of new structural and institutional constraints to strengthen the competitiveness and sustainability of production systems, agro-ecological practices, and to improve the quality of agricultural products and their access to regional and global commodity markets.

The economic conditions that have emerged in recent years are modelling the development of completely new value chains and logistical pathways for interregional supplies. Under these conditions, the sustainability of national food systems has been put to the test, as demonstrated by the shocking changes in the prices of agricultural products on world markets.

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The dependence of the sustainability of rural territories on the state of the existing agoproductive base is obvious, the higher its potential and efficiency, the more sustainable the territory and its functionality. Therefore, the fulfillment of tasks to maintain food security in the territory allows the formation of cooperation in all spheres of socio-economic life in the village. Agriculture as a production sector generates and stimulates hidden reserves in other related industries (processing industry, agricultural engineering, wholesale trade, transport industry, etc.). In addition, it has already been proved that 1 new job in the agro-industrial complex gives an opportunity to open additional 5-6 new jobs in related industrial sectors.

Taking into account the above arguments, the strategic objectives of the state should be to expand the directions of stimulating and supporting the development of rural areas. This is done through the activation of farmer entrepreneurship and the creation of an infrastructure of interaction between agricultural producers. Only a sustainable farming sector allows the rural ago-sector to function stably and provide the processing sector with quality food raw materials in sufficient quantities.

2 Materials and methods

The study used the data of continuous and sample statistical observations, the All-Russian Agricultural Census of Russian territories conducted by the Federal State Statistics Bodies of the Russian Federation. The assessment of planned target indicators of provision of agricultural industries was carried out by the methods of horizontal and vertical analysis on the basis of officially approved regulatory documents. The works of Russian and foreign scientists were used to generalize and review the main directions of agricultural development. The methods of analogy, generalization, logic, and abstraction and synthesis were applied in the work.

3 Results and discussion

Rural areas are a strategic natural resource for the national economy. However, the decline in rural population, migration to big cities, isolation of rural residents from infrastructural advantages, low wages or lack of sources of legal earnings. Poor communication infrastructure and other factors — do not allow the maximum realization of the potential of rural areas.

Rural areas will be developed in places where there is a strong agricultural sector that allows creating conditions for a quality standard of living for the population. As a rule, the lack of earnings in rural areas forces people to move to large cities and realize their labor opportunities there. Therefore, state support of agriculture can form not only a powerful agrarian sector, but also revive the traditions of rural entrepreneurship. In addition, it should be noted that only stable agricultural production will provide the country with the necessary and quality food raw materials in sufficient quantity to meet not only domestic needs, but also exports to world markets.

Rural territories have great multifunctionality, which allows covering the interests and needs of the population, local organized communities, farms and territorial management as widely as possible. Depending on the level of development of a rural area, the functions increase or decrease their influence. Let us consider the main functions of rural territories in more detail (Fig. 1).

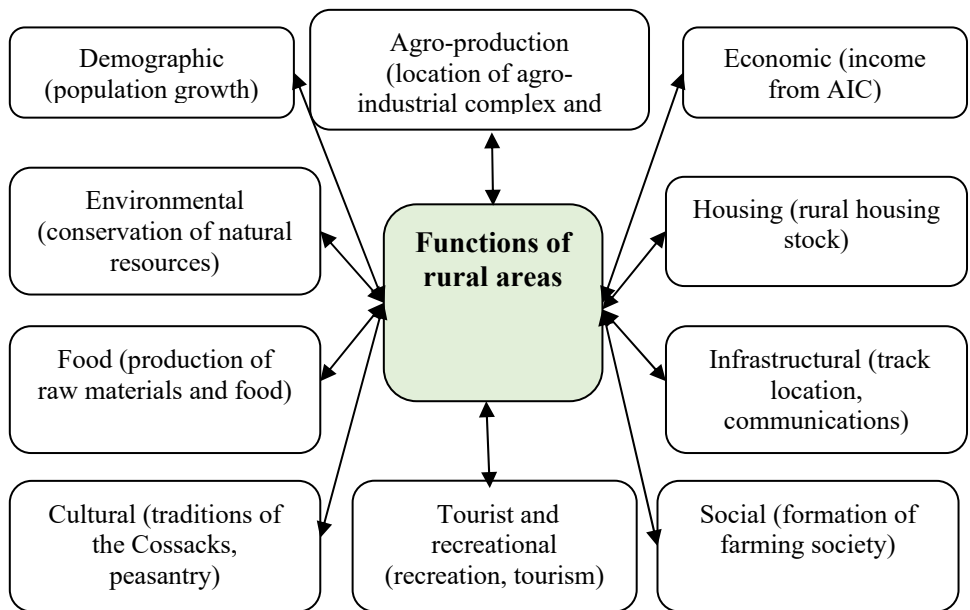


Fig. 1. Social (formation of farming society) [1].

The typical functions of rural areas presented in Fig. 1 allow us to emphasize the importance and necessity of preserving and developing these locations. They provide cities with food and population, replenish the country's budget, create recreation and preserve the ecological balance of the territories.

In the current geopolitical conditions of recent years, Russia seeks to strengthen its food security by expanding state support for rural entrepreneurship [2]. It should be noted that the measures taken are yielding certain results.

For example, starting from 2020, Russia's agro-industrial complex is increasing production of grain crops not only for the domestic market, but also for export. At the end of 2023, the total volume of grain exports increased by 10.6 percent. Russian grain was supplied to 169 countries [3] (China, Turkey, Kazakhstan, Egypt, Belarus, India, Saudi Arabia, Uzbekistan, Japan and other countries). In 2024, management plans to increase export volumes, while redirecting logistics through the Far Eastern phytosanitary control zones, as well as continuing to develop new markets on the African continent and Asian countries [4].

Undoubtedly, Russia is striving for self-sufficiency in food raw materials to the full extent, while there have been noticeable advances in the provision of seeds for the needs of agrarians. Thus, in accordance with the Order of the Russian Government No. 4133-r, the list of major crops and animals and the volume of self-sufficiency of the country in these species until 2030 have been approved. In accordance with the planned indicators, state support is provided for breeding and the formation of seed and breeding stock for the AIC industries. High import dependence on seed material constrained the development of the Russian AIC, but gradually since 2014 the situation has been levelling off [5, 6].

The target indicators of seed self-sufficiency are set at a fairly high level. For example, for the grain group wheat, rice, oats the level reaches 95%, which is achieved through various state instruments to stimulate breeding and quota imports of seeds of these crops. In the Crop Production sector, there is low availability of potato (10% by 2024) and sugar beet (3% by 2024) seeds, which is an alarming fact of dependence of producers and processors of these crops on imports. The situation in the livestock sector is calmer, as the actual seed supply ranges from 9% to 99% for 2024. The lowest indicator is in the poultry sector — 9%, which

requires a review of the policy of importing pedigree eggs. The main target criteria are presented in Table 1.

Table 1. List of main crops and animals, for which the planned indicators of self-sufficiency in seeds and pedigree material have been approved.

	2022	2023	2024	2025	2026	2027	2028	2029	2030
CROP PRODUCTION									
Winter wheat	92	92.5	93	93.5	94	95	95	95	95
Spring wheat	74.3	77.5	78	78.5	79	79.5	80	81	82
Rice	92.7	95	95	95	95	95	95	95	95
Grain legumes	36.3	45	46	48	50	55	60	70	75
Oats	79.9	81.5	82	82.5	83	83.5	84	85	85
Spring barley	70.3	71	72	75	76	77	78	79	80
Soybeans	43.5	48	50	52	54	60	65	70	75
Spring rape	30.6	31	32	33	40	50	60	70	75
Sunflower	23	25	30	50	55	60	65	70	75
Maize	41.8	45	48	50	55	60	65	70	77
Potatoes	6.7	9	10	11	12	13	14	15	50
Sugar beet	1.8	2.5	3	4	6	9	11	15	50
	2022	2023	2024	2025	2026	2027	2028	2029	2030
LIVESTOCK									
Cattle, including									
Dairy breeds	61.4	65	66	67	68	69	70	71.1	72.1
Meat breeds	98.2	99	99	99	99	99	99	99	99
Pigs	84.6	85	86.3	87.6	88.9	90.2	91.6	92.9	94.3
Sheep	98.5	99	99	99	99	99	99	99	99
Goats	40	40.6	41.2	41.8	42.5	43.1	43.7	44.4	45.1
Poultry (meat)	1,5	3	9	15	16	17	19	21	25

The list of AIC products presented in Table 1 forms the basis of the agricultural production base in the regions. Rural areas develop only in the presence of a productive base that allows the formation of socio-economic infrastructure of the village. Therefore, the provision of agricultural enterprises with seeds of domestic selection is a task of national importance. Stable functioning of production facilities in rural areas will allow creating sustainable settlements and culture of living in the village. In addition, it will provide additional income to local budgets for the development of social sphere and attraction of necessary specialists [7].

Intensification of breeding activities will finally strengthen the achieved success in improving the level of national food security, but will not bring additional income for the economy. Domestic seed and breeding base will reduce the import dependence of agricultural producers, provide a new round for the development of science and technology in the industry, and maximize the links between farmers and buyers [8].

The developed production base of the village will activate the potential of other related industries (food, textile, leather, pharmaceuticals, etc.), which will open new horizons and jobs for specialists not involved in the agro-industrial complex. The growth of Russian agricultural exports is only the beginning for the development of territories. In the future, it is necessary to re-profile to the export of products of deep processing and finished food forms.

Comprehensive development of agriculture is planned within the framework of the Strategy for the development of agro-industrial and fishery complexes of the Russian Federation for the period up to 2030 approved by the Government of the Russian Federation No. 2567-r (hereinafter — the Strategy). It is planned within the framework of the federal project export of agricultural products (national project International Cooperation and Export) and within the framework of the Doctrine of Food Security. 2020. Let us highlight the main target basic criteria of the projected growth of the AIC industries (Fig. 2).

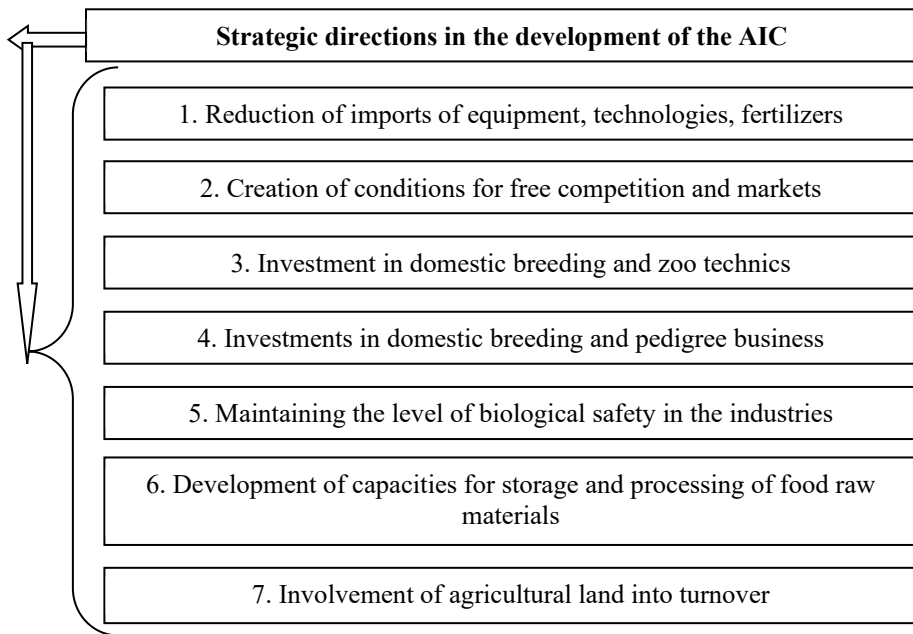


Fig. 2. Strategic priorities of the new conditions for the development of Russia's AIC [9].

The listed main directions of the future development of the agro-industrial complex for the period until 2030 generally emphasizes the emerging trends of recent years. Under the new conditions of geopolitical developments and the emergence of new territories within Russia, it is necessary to realize its own sustainable development goals as independently as possible, strengthen rural agglomerations and create conditions for investment in processing enterprises [10, 11].

The achieved breakthrough yields and export volumes in 2023 should be supported and strengthened by a new vector — export of processed agro-industrial products and food products to the world food markets [12]. This requires the need to modernize equipment and agricultural machinery, the depreciation of which in some sectors reaches 75.2% according to FSSS. In this regard, the issues of technological self-sufficiency of the agro-industrial complex and localization of production within the country will be a top priority. For this purpose, it is planned to transfer up to 50% of all applied technologies to domestic capacities and software, which will require increased investment in fixed capital of agro-industrial complex enterprises [13, 14] (Fig. 3).

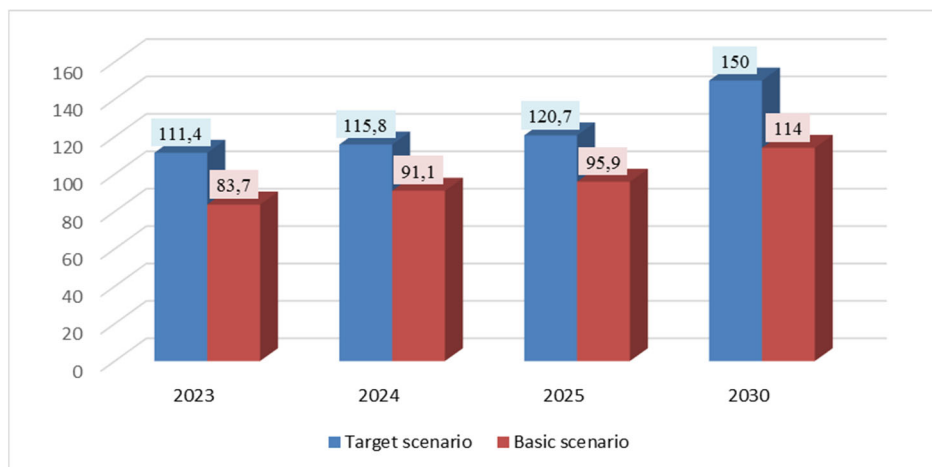


Fig. 3. Index of the volume of investments in the modernization of AIC enterprises [15].

The growth rates of investments in modernization of the fixed assets of agricultural enterprises presented in Fig. 3 prove that investment resources will be planned for the implementation of measures under two scenarios. Under the target forecast scenario the index of real investments is planned to grow to 150 units in 20230, under the base scenario the level will increase to 114 units.

4 Conclusion

Summarizing the results of the analysis of the state of food security in Russia and the impact of its level on the development of rural areas. It can be noted that the AIC of the country is integrated with the economies of the territories. The main necessary resource (land) for the development of AIC and fulfillment of the target indicators of the Food Security Doctrine is located in rural areas, which today are in a state of population loss and social degradation. Therefore, for the successful development of AIC industries, it is necessary to create socio-productive clusters for the revival of rural areas.

The successes of the Russian AIC in recent years require a sustainable production and seed base, which today continues to develop and expand. Moving away from import dependence in many categories of agricultural seed and breeding material will strengthen the independence of the Russian AIC in the future. It will also create new opportunities for the development of scientific and technological centers for breeding and genetics, as well as stable, uninterrupted supply of agricultural producers with planting and seed material for the new production cycle.

The vector of expansion of Russian exports of agricultural goods should be developed through the supply of products of deep processing. This goal will be achieved if, in addition to the production base, the regions develop in parallel a processing base and a base for Thus, we note that the main directions of strengthening rural areas should be measures to increase the country's self-sufficiency in agricultural seeds and flame material, technologies and machinery; measures to create processing and preservation infrastructure; measures to create the necessary social infrastructure in rural areas. Only in the integrated implementation of the above measures will the country's food security and independence continue to improve, as well as the sustainability and development of rural areas.

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