Development of a green economy as a factor in ensuring food security in the context of climate change in Russia

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Abstract. The current state of food security largely depends on the impact of global economic processes, which over the past five years have not had an overall positive trend due to financial instability and uncertain development prospects. The economic instability of the global economy significantly affects food security at the micro–macro level, which ultimately hinders the development of the national economy. The world experience of using national models of economic development using mobilization principles is summarized. In order to determine the "breakthrough points", the efficiency of agricultural production and the dynamics of agricultural exports are analyzed. The choice of a breakthrough branch of the economy is justified - agricultural production, which allows ensuring the economic growth of the country and ensuring food security.

1 Introduction

One of the most pressing global problems of Russia's economic development is ensuring food security and sustainable economic growth. The discussions of economic scientists revolve around issues in the field of building a developed socially oriented market economy. There is a widespread idea in the Russian scientific community that a liberal development model is the only possible and correct way to construct a national economy [1, 2].

However, in the context of the globalization of the world economy, the state as an institution is doomed to active interaction with market institutions and the need for public solutions to economic and social problems, the range of which is expanding with the aim of the need for countries to acquire competitive economic advantages.

For example, according to FAO forecasts, global food production needs to be increased by 70% by 2050 in order to feed the entire global population, which is projected to grow to 9.3 billion people. And in particular, the demand for grain for food and feed consumption will reach 3 billion tons in 2050. Given the current grain production of about 2.1 billion tons, its increase should be almost 1 billion tons (48%).

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Consequently, food security issues at the domestic and international levels remain relevant and require further generalizations and research.

2 Materials and Methods

The methodological basis of the article is general scientific and special research methods: induction and deduction, scientific abstraction, comparison - in the study of the availability of agricultural land in certain regions of the country; the grouping method - in determining the types of economic activities of the food sector.

The theoretical and methodological basis of the research was the works of leading scientists-economists I.G. Ushachev [12], A.I. Altukhov [2-3], A.A. Aitpaeva [1], D. E. Bekbergeneva [4], V.I. Ivanova [8], E.N. Krylatykh [9] and others.

Despite the presence of a fairly large number of studies and developments by scientists and practitioners in this area, nevertheless, the impact of negative phenomena and processes on the domestic economy is increasing due to financial instability, the military-political situation and the imposition of sanctions.

In such conditions, the activities of many business entities, including in the agricultural sector, are accompanied by loss of sales markets, deterioration of solvency, decrease in financial stability, bankruptcies, etc.

Unresolved problematic issues in this area and the combination of all the above negative factors lead to the fact that many enterprises lose sales markets, the consequences do not allow them to achieve the proper level of economic growth, make it difficult to implement effective economic restructuring, and have a negative impact on the economic policy of the country as a whole.

All this determines that special attention should be paid to the formation of an effective food security system based on the achievement of a modern economy and innovative approaches to entrepreneurial activity, as well as financial diagnostics and anti-crisis management tools.

3 Results

The agro-industrial complex of the country is represented by all the above-mentioned spheres.

In general, two complexes are distinguished in agro-industrial production according to the functional principle: a food complex (FC) and a non-food complex. The functional feature of a PC is determined by the degree of its participation in achieving the main goal - the fullest provision of food to the population and food security of the country and its regions.

Some scientists believe that FC is part of the agro-industrial complex, since it is associated with food production, and also covers those links that do not belong to the agro-industrial complex (fisheries, salt industry, mineral water bottling, etc.) [8].

However, the concept of "agro-industrial complex" is broader than the concept of "food complex", since it includes functional links related to the production of clothing, shoes and other consumer goods. At the same time, the FC includes the production of salt, mineral waters, gifts from forests (mushrooms, berries, nuts, etc.) and seas, inland reservoirs (fishing), technologically unrelated to agricultural production [6].

The attention of academic economists is drawn to the discussion of topical issues such as the boundaries, on the one hand, of liberalism in the economy, and on the other hand, the degree of state regulation.

According to E.N. Krylatykh, the problem is not really whether to intervene or not, since it is almost impossible to avoid it, but for the purposes of intervention, its tools and consequences [9]. However, based on the fundamentals of the evolutionary theory of economic policy, the methods of regulation should differ fundamentally depending on the stage of development of the national economy.

The historical analysis of the ways of building a market economy for countries at different stages shows that absolutely all countries that have achieved significant economic success have used complex strategies, applying mobilization principles of development: the industrial mobilization model of F. List (Germany in the XVIII century); the mobilization model of O. Bismarck (Germany in the XIX century); "The New Deal" by T. Roosevelt (USA); the mobilization model of economic modernization of the United States. de Gaulle (France); the German post-war mobilization model of L. Erhard's export expansion; the Japanese post-war innovation model; the Chinese mobilization model of industrial breakthrough [5].

Liberal strategies generally assume that the state's economy is becoming more and more open to the free movement of goods and capital. In turn, the regulated economy is determined by the degree of state control over the movement of goods and capital, and the strategy of direct intervention in industrial relations and foreign economic relations is defined as the mobilization strategy of the state [11].

. During the transformation of the public economy, the complete liberalization of international economic relations slows down the processes of formation of the national economy, prevents the formation of the country's economic potential and blocks its opportunities to enter the world economic space on parity terms. A country that wants to succeed is simply doomed to apply a mobilization development strategy. In this context, I.G.'s point of view is scientifically justified. Ushachev, who emphasizes the use of a policy of strong protectionism that would meet national interests.

According to V.I. Ivanov, only the economic strategy of the state can be mobilized when it assumes the fulfillment of all those necessary economic functions that the economy of free enterprise cannot cope with. This usually happens during periods of national disasters: wars, economic crises, famines, epidemics, etc. The mobilization economic strategy turns out to be quite effective in overcoming economic backwardness, eliminating imbalances in national economic development, stimulating the development of strategically important industries [10].

The content of the mobilization strategy is reduced to a large-scale redistribution of resources by the state and their concentration in areas declared priority (infrastructure, energy, high-tech engineering, nanotechnology, etc.). The strategy under consideration can ensure the modernization of industries declared "breakthrough" and "priority". According to A.A. Aitpayev, the driving force of economic growth is the export of both resource and high-tech products [5].

The mobilization strategy consists of two stages: 1) the use of internal potential (the formation of a rational, viable production structure), requiring a hidden form of autarky (relative closeness); 2) breakthrough (expansion) to the foreign market in order to attract global resources to strengthen the national economy [9].

The analysis of scientific papers shows that heavy industry, namely mechanical engineering and the fuel and energy complex, are among the most "breakthrough" sectors of the economy.

However, among the drivers of Russia's economic growth, the agricultural sector has been coming to the forefront over the past five years, along with the military-industrial cluster of information and telecommunications technologies, acting as a breakthrough branch of the country's economy.

4 Discussion

For any country, one of the main and strategically important industries is food production, since ensuring the food security of the population is one of the main priorities of the state.

The volume of food consumption in the world is constantly growing, an increase of 10% annually, in Europe - 30%, with a total volume of 50-70 billion. euro [3].

The effective development of agricultural production in Russia solves not only the issue of food security, but also forms an effective resource for foreign economic activity and creates a reliable source of budget revenues and a powerful industrial and economic potential for the development of rural areas and the economy of the state as a whole. Agriculture in Russia is one of the most important branches of material production, where 5.8% of the country's GDP was created in 2022, 4.3% of GDP in 2023, and the volume of gross agricultural output (in constant prices) amounted to 242.2 billion rubles, most of which falls on crop production.

According to Rosstat, the harvest of grain and leguminous crops in 2022 amounted to 157.676 million tons. This is 29.9% more than in 2021 (121.399 million tons). Including wheat - 104.237 million tons. In 2023, the harvest of grain and leguminous crops in farms of all categories in Russia in net weight amounted to 142.6 million tons. Including 92.8 million tons of wheat were harvested. Compared to 2022, the grain harvest decreased by 9.5%.

The average yield of grain and leguminous crops in the Russian Federation in 2022 increased by 25.9% compared to 2021, to 33.6 c/ha. In 2023, the average yield of grain and leguminous crops amounted to 30.8 kg/ha, which is 8.4% lower than last year's figure. Including grain yields decreased by 8.3%, reaching 31.5 c/ha

The cultivation of fruit and vegetable crops plays an equally important role in addressing food security issues. In 2022, Russian farmers significantly increased the collection of vegetable components of the "borscht set", while the yield increased by 5% on average in the country, according to the Ministry of Agriculture. "Thus, agricultural enterprises and peasant farms harvested 7.2 million tons of potatoes, which is 9.1% more than last year (6.6 million tons)." More than 5.2 million tons of vegetables were harvested compared to 5.1 million tons a year earlier, which is 2% more. Including. the cabbage harvest amounted to 953.1 thousand pieces. tons (+19.3%), table beet — 416.6 thousand tons (+9.3%), carrots — 841.3 thousand tons (+9.5%), onions — 1.1 million tons (+8.3%).

In 2023, the harvest of vegetables from open and protected ground in the organized sector, according to preliminary estimates by Rosstat, amounted to about 7.2 million tons. In particular, a good harvest of greenhouse vegetables was obtained – almost 1.7 million tons. This is a new record after 2022, when domestic farmers grew more than 1.64 million tons of greenhouse vegetables. According to the Ministry of Agriculture of the Russian Federation, in January 2024, the gross harvest of vegetables in winter greenhouses amounted to 93.3 thousand tons, which is 10 thousand tons, or 11% higher than last year's figure. Including the harvest of cucumbers amounted to 46.8 thousand. tons (+7.6%), tomatoes — 43.8 thousand tons (+14.1%).

However, compared to other countries of the world where soil quality is worse, the yield of domestic cereals and legumes is significantly lower. For example, in the UK, Germany, France, the yield of cereals and legumes ranges from 64 to 68 c/ha, in the USA - 67.5 c/ha; the yield of sugar beet in some EU member states ranges from 628 c/ha (Germany) to 947.2 c/ha (France)., in the USA - 532.7 c/ha, in the world – 536.7 c/ha [4].

These results indicate the inefficient use of Russian land resources, the main reasons for which are:

– "…lack of a strategy for the development of land relations;

– the lack of a transparent, adequate regulatory framework for regulating land relations, which are a prerequisite for sustainable land use;

– the use of leased land for the cultivation of agricultural crops for many years in a row, primarily sunflower and rapeseed, which leads to a scale threatening the environment;

– the destruction of fertile soils, the tendency of which is associated with non-compliance with scientifically based crop rotations and fundamental technologies" [5].

In 2022, the production of chilled poultry meat increased by 0.4% compared to 2021, amounting to 3.4 million tons.

According to Rosstat, in 11 months of 2023, 3.1 million tons of chilled poultry meat were produced in the Russian Federation — 0.2% more than in the same period last year.

The total increase in pork production in 2022 amounted to 5%, or more than 200 thousand tons of meat in slaughter weight.

Also, according to Rosstat, the volume of meat production in Russia in 2023 increased by 5% compared to a year earlier - to 3.6 million tons.

However, if we consider the production of meat only from cattle, then in 2023 there is a decrease in volumes for this category of products. This is happening against the background of rising feed prices and a shortage of forage. In addition, low demand for cattle meat is negatively affected by its high price, low profitability of production and competition from other types of meat. Another negative factor is the unification of the meat and dairy industries of animal husbandry in Russia, which leads to a certain distortion of the situation in beef production. Other negative factors are:

– reduction of the number of cows in Russia annually from 150 to 300 thousand heads;

– the growth of beef exports abroad and imports of frozen beef to Russia;

– government support for economically successful large complexes per 1,000 head of cattle, while small and medium-sized dairy farms are beginning to decline sharply due to lack of resources and the possibility of modernization.

Despite the presence of negative factors in a number of indicators in the agricultural sector, agricultural producers demonstrate positive income dynamics by an average of 4.5% from year to year.

According to statistics, there is an increase in net income from the sale of agricultural products and services. In 2023, net income (revenue) from the sale of agricultural products and services amounted to 5.7 trillion rubles, an increase of 6.6% compared to 2022 (Fig. 1).

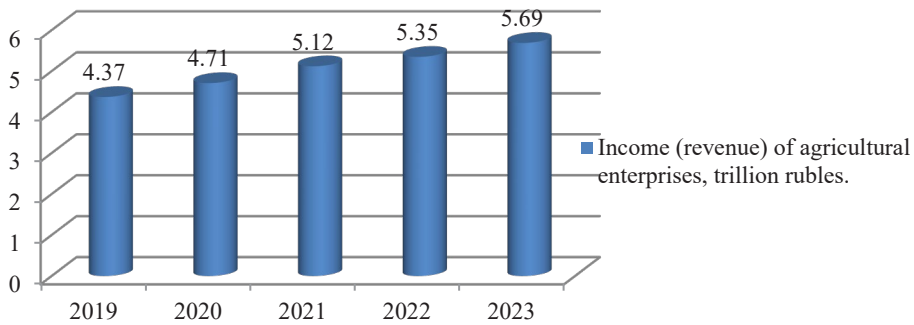

Fig. 1. Net income (revenue) from the sale of products by agricultural producers, (2019-2023), trillion rubles.

In this case, agricultural producers play a major role in addressing food security issues in the country, where the main functions are:

1) preventive, related to the use of a set of measures aimed at preventing or reducing losses, and with the possibility of carrying out preventive measures aimed at preventing and controlling the occurrence of potential threats to the economic condition of economic entities.

2) the stabilization function, the content of which is to create and maintain an equilibrium state of the finances of the business entity, in which the usual fluctuations in the movement of financial flows within the entity will not lead to a violation of the laws of its functioning and development. Performing this function is closely related to countering internal dangers and threats.

3) adaptive function, which includes the creation of a flexible and rapid response system to minor fluctuations in the external economic environment, allowing to prevent the unbalanced development of an economic entity. Performing this function will lead to an increase in the subject's resistance to non-systemic external hazards and threats.

4) A protective function, which consists in creating significant counteractions to systemic threats and dangers that can lead to a state of crisis, even if the business entity remains in a state of stable financial equilibrium.

It is undeniable that any actions to identify promising areas of economic security at any level of economic relations will lead only to positive results if they are based on an appropriate methodological basis. Therefore, updating the methodological foundations of the economic security system in accordance with the goals and interests of the subjects remains an important problem of entrepreneurship, which should be taken into account when building it in the future.

Profitability indicators reflect an equally important role in agricultural production. In particular, in crop production, profitability in 2022 reached 31.2%, in 2023 there was a decrease of 4.5%, when the profitability level was 26.7%. Overall profitability in all areas of the agricultural sector has increased by 9.1% over the past five years (2019 18.6%, 2023 20.3%).

Such differentiation of indicators of profitability of livestock and crop production is due to the existing model of development of the agricultural sector in Russia - the orientation of production of large agricultural holdings for export.

The investment potential in the agro-industrial complex is changing from year to year, however, it remains high not only from domestic investors, but also investors from abroad are also showing interest.

More than half of the investments are in the development of crop production, primarily in the cultivation of annual and biennial crops. In recent years, less than a third of direct investments have been directed to the development of animal husbandry. The main investors in the agricultural sector of the Russian economy until 2022 were: Cyprus, Luxembourg, Germany, the Netherlands, the USA, and the United Kingdom. After 2022, the funds of China, the United Arab Emirates, and Qatar dominate.

5 Conclusion

The difficult political and economic situation in Russia requires the government to apply a mobilization strategy for the country's economic development. Currently, the breakthrough branch of the economy is agricultural production, which allows for economic growth, primarily through net exports and to ensure food security as a necessary condition for the existence of mankind. In Russia as a whole, the absolute majority of its regions are provided at the expense of agricultural land and arable land, since in conditions of multi-earths they have both absolute and comparative advantages in terms of growing cereals, technical, fodder and other agricultural crops. In addition, Russia has a great export potential due to the production of agricultural products.

The complex multidimensional food problem requires further implementation of socio-economic, organizational and technical measures that are interconnected and organic unity. At the same time, it is necessary to rationalize the relationship between enterprises and organizations located within a particular region. Their efforts in solving the food problem should be aimed at achieving a single goal - uninterrupted provision of the population with necessary food and in sufficient quantities in order to ensure food security. The solution to this multifaceted problem, according to leading agricultural economists, is carried out by the agro-industrial complex of the country and its regions.

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