ANALYSIS OF AGRICULTURE SUSTAINABLE DEVELOPMENT IN RUSSIA

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Abstract
The article is focused on determining the current situation in Russia on the way to achieving the goals of sustainable development in agriculture. When analyzing the literature, it was revealed that most of the goals and objectives of sustainable development are already, to a greater or lesser degree, incorporated into the main strategic and program documents in Russia. Achievements in the implementation of SDG 2 "End hunger, achieve food security and improved nutrition and promote sustainable agriculture" were considered. Statistical indicators of agriculture sustainable development in Russia are analyzed. The principles for development of the agrifood systems sustainability concept are formulated and presented. In the last century and a half, the main task of Russia in country's food security has been to feed its population. At the present day, it can be stated that this problem has been mainly solved.

Introduction

On September 25, 2015, the UN General Assembly adopted the 2030 Agenda for Sustainable Development [1], which includes 17 goals aimed at eradicating poverty, conserving the planet's resources and ensuring prosperity for all (Figure 1) [2]. It is important to note that this agenda is universal and concerns all countries [3]. In the same year, the UN Statistical Commission established the Inter-Agency and Expert Group on Sustainable Development Goal Indicators [4]. The group included representatives of 28 national statistical agencies, including Russian one [5].

The 2030 Agenda for Sustainable Development [1] was designed to improve the lives and future of all people around the world [3]. Due to this, today the world community has not only the peacekeeping resolutions adopted by the General Assembly and the Security Council, but

Figure 1. The sustainable development goals [2]

also roadmaps. In fact, sustainable and inclusive development is not only an independent goal, but also the best tool available to the international community to prevent various problems [6–8].

Achieving the sustainable development goals requires the joint efforts of governments, private businesses [9,10], civil society and people of the Earth [11,12].

The sustainable development goals (SDGs) are increasingly integrated into the policies of modern states [13]. And the Russian Federation is no exception. This is expressed both in the inclusion of individual goals and objectives of sustainable development, as well as individual indicators reflecting the degree of their achievement, in the country's strategic and program documents, and in the formation of a comprehensive system for statistical accounting of the indicators. It is important to note that most of the goals and objectives of sustainable development are already, to a greater or lesser degree, incorporated into the main strategic and program documents adopted in Russia. The participation of civil society, business, non-governmental organizations, volunteers and scientific community is of great importance for achieving sustainable development goals [14].

The UN General Assembly recommended that countries should create their own national sets of indicators. Taking into account the national features and tasks defined in the strategic documents of the Government of the Russian Federation, in 2020 a list of national SDG indicators was approved, which initially included 160 indicators. At the same time, it was decided that the national list of SDG indicators should be a flexible tool for tracking progress in achieving the goals. In 2022, the national list of SDG indicators has been updated to include 175 indicators [15]. It is designed to monitor the achievement of sustainable development goals at the national level [15]. The list reflects national features and takes into account the tasks defined in the Decree of the President of the Russian Federation dated May 7, 2018, No. 204 "On the national goals and strategic objectives of the development of the Russian Federation for the period up to 2024"[1], strategic documents of the Government of the Russian Federation, as well as national and federal projects.

The Russian Federation is actively working to monitor the indicators of achieving the sustainable development goals. A review panel on information and statistical support for SDG monitoring has been created. A number of laws and doctrines have also been adopted at the legislative level [14]. Taking into account the importance of achieving the sustainable development goals, the article presents the analysis of statistical indicators for agriculture sustainable development in Russia.

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[1] On the national goals and strategic objectives of the development of the Russian Federation for the period up to 2024 (Decree of the President of the Russian Federation dated May 7, 2018, No. 204). Retrieved from https://docs.cntd.ru/document/557309575. Accessed March 2, 2023. (In Russian).

Materials and methods

A review study method was used for analytical study of the databases: elibrary, Elsevier, Scopus, Russian Federal State Statistics Service, the Central Bank of the Russian Federation, the Ministry of Internal Affairs of the Russian Federation, the Ministry of Health of the Russian Federation, the Ministry of Natural Resources of the Russian Federation, the Ministry of Education of the Russian Federation, the Ministry of Agriculture of the Russian Federation, the Ministry of Construction of the Russian Federation, the Ministry of Transport of the Russian Federation, the Ministry of Finance of the Russian Federation, the Ministry of Digital Development of the Russian Federation, the Ministry of Economic Development of the Russian Federation, the Ministry of Emergency Situations of the Russian Federation, the Treasury of the Russian Federation, Russian Federal Road Transport Agency, Russian Federal Agency of Water Resources, Russian Federal Service for Hydrometeorology and Environmental Monitoring, Russian Federal Agency for Forestry, Russian Federal Service for Supervision in Education and Science, Russian Federal Service for Surveillance on Consumer Rights Protection and Human Wellbeing, Russian Federal Service for Supervision of Natural Resources, Russian Federal Service for State Registration, Cadaster and Cartography, Russian Federal Agency for Fishery, Federal Tax Service of the Russian Federation, Federal Penitentiary Service of the Russian Federation, the Chamber of Commerce and Industry of the Russian Federation and the Russian Union of Industrialists and Entrepreneurs. The following inclusion criteria were considered: impact factor, combinations of keywords. Exclusion criteria were: irrelevant data. A strategic planning method was also applied, which consists in identifying factors of the internal and external environment for the sustainability of agrifood systems (SWOT analysis).

SDG 2 "End hunger, achieve food security and improved nutrition and promote sustainable agriculture"

One of the UN sustainable development goals up to 2030 is SDG 2 "End hunger, achieve food security and improved nutrition and promote sustainable agriculture" [2].

Hunger and malnutrition are common cause of diseases, a decrease in people's working capacity and, as a result, inability to increase earnings and improve living conditions [16]. Goal 2 aims to end all forms of malnutrition, build sustainable food production systems [17], and adopt agricultural practices [18–20] that increase production, save ecosystems [21], strengthen the ability to adapt to climate change, extreme weather events, droughts, floods and other disasters and gradually improve the quality of land and soil [22–25].

Without the elimination of hunger, it is impossible to achieve equality and effective functioning of the economics and the social sphere. Russia has made significant progress in achieving SDG 2 (Figures 2, 3, 4, 5) [26].
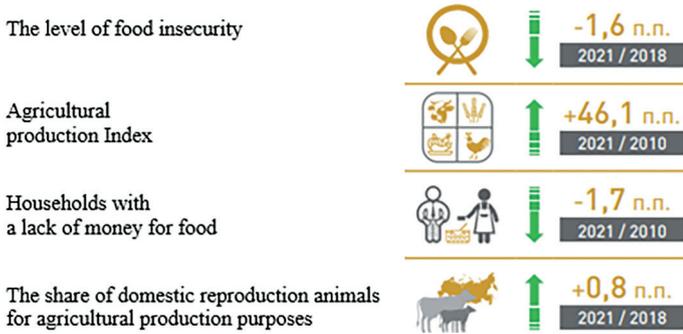
The level of food insecurity — ↓ -1,6 п.п. 2021 / 2018

Agricultural production Index — ↑ +46,1 п.п. 2021 / 2010

Households with a lack of money for food — ↓ -1,7 п.п. 2021 / 2010

The share of domestic reproduction animals for agricultural production purposes — ↑ +0,8 п.п. 2021 / 2018

Figure 2. Achievements of Russia in the field of SDGs

It should be noted that the amount of lack of money for food is steadily decreasing. In 2021, only 0.1% of households reported this lack (Figure 3) [26] compared to previous years: 0.2% of households in 2020 [27], 0.5% of households in 2019 [28], 0.9% of households in 2018 [29], 0.9% of households in 2017, 1.0% of households in 2016, 1.2% of households in 2015, 1.8% of households in 2010.
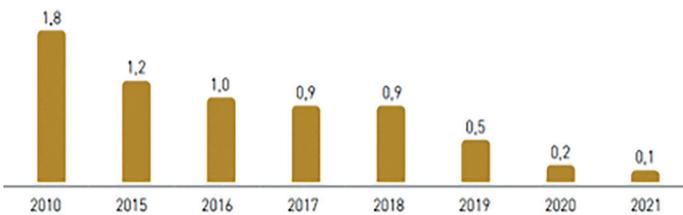

Figure 3. Households with a lack of money for food, %

The share of domestic reproduction animals for agricultural production purposes has increased, i. e. in 2021 it was 94.3% [26] compared to previous data: in 2020 it was 93.4% [27], in 2019 it was 93.4% [28], in 2018 it was 93.5% [29] (Figure 4) [26].
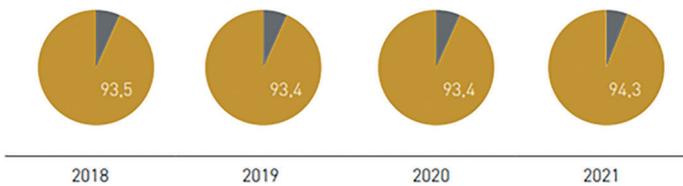

Figure 4. Share of domestic reproduction animals for agricultural production purposes, %

The priority areas in the development of animal husbandry in the Russian Federation in terms of social and food significance are dairy cattle breeding, specialized beef cattle breeding, and the development of crop fodder [30].

The Russian Federation has a unique gene pool of farm animals, which is represented by 42 species, 744 breeds, types and cross-breeds of worldwide and domestic selection. More than 2.3 thousand herds of breeding farm animals of 14 species are registered in the state breeding register [31].

In order to ensure food security in the country, the Doctrine of food security of the Russian Federation[2] is in force, the strategic goal of which is to provide the popula-

tion of the country with safe, high-quality and affordable agricultural products, raw materials and food in volumes that ensure reasonable consumption rates [32,33]. Already in 2018, the prevalence of malnutrition was low, i. e. about 1.6% (among people over 18 years old). At the same time, in 2018, only 0.3% of the Russian population felt severe food insecurity, and 6.2% of the Russian population felt moderate or severe food insecurity [29]. In 2020, severe food insecurity was felt by 0.3% of the Russian population, and moderate or severe food insecurity was felt by 5.7% of the Russian population [27]. In 2021, severe food insecurity was experienced by 0.3% of the Russian population, while moderate or severe food insecurity was experienced by 4.6% of the Russian population (Figure 5) [26].
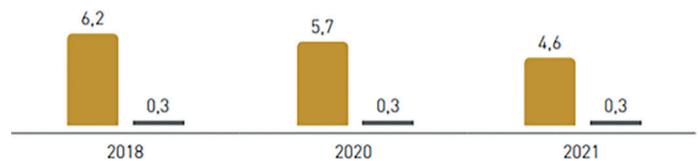

Figure 5. Level of food insecurity, %

In addition to this, there is a process of increasing the level of food security within the framework of interstate interaction of the EAEU member states on the basis of agreed directions and measures, which meets the main goal of the coordinated agro-industrial policy of the Union [34,35].

The basis for the formation of a national food quality management system in the Russian Federation is the Strategy on improvement of the quality of food products in the Russian Federation until 2030[3]. The strategy is focused on providing good nutrition, preventing diseases, increasing the duration and improving the quality of people's life, stimulating the development of production and circulation of good-quality food products on the market.

In 2019, the Long-term strategy for the development of the grain complex of the Russian Federation until 2035[4] was approved. The goal of the strategy is to form a highly efficient, scientifically and innovatively oriented, competitive and investment-attractive balanced system for the production, processing, storage and sale of basic grain and leguminous crops and their processed products, which guarantees Russia's food security, fully meets the country's domestic needs and creates a significant export potential.

From the point of view of ensuring the safety of products in the country, it should be noted that in the Russian Federation it is prohibited to grow and breed plants and animals whose genome has been changed using genetic engineering methods, with the exception of growing and breeding such plants and animals during examinations and research works [14].

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[2] Doctrine of food security of the Russian Federation (Decree of the President of the Russian Federation dated January 30, 2010, No. 120). Retrieved from https://docs.cntd.ru/document/564161398. Accessed March 2, 2023. (In Russian).

[3] Strategy on improvement of the quality of food products in the Russian Federation until 2030 (Decree of the Government of the Russian Federation dated June 29, 2016, No. 1364-r). Retrieved from https://docs.cntd.ru/document/420363999. Accessed March 2, 2023. (In Russian).

[4] Long-term strategy for the development of the grain complex of the Russian Federation until 2035 (Decree of the Government of the Russian Federation dated August 10, 2019, No. 1796-r). Retrieved from https://docs.cntd.ru/document/560974985. Accessed March 2, 2023. (In Russian).

Russia is implementing the Federal scientific and technical program for the development of agriculture for 2017–2030[5], which sets the transition to highly productive and environmentally friendly agriculture and aquaculture, storage and efficient processing of agricultural products, and the creation of safe and high-quality food products as policy priorities in this direction [36,37].

Financial support and mechanisms for creating sustainable systems for the production of agricultural products are specified in the State program for the development of agriculture and the regulation of markets for agricultural products, raw materials and food[6] and the completed Federal target program "Sustainable development of rural areas for 2014–2017 and for the period up to 2020"[7]. In addition, the objectives of the ongoing Federal scientific and technical program for the development of agriculture are: the creation of scientific and technical results and products ("creation of knowledge"); transfer of scientific and technical results and products to practical use, implementation of training activities in order to ensure the development of agriculture ("technology transfer"); commercialization of scientific and technical results and products ("application of knowledge") [38,39].

Measures taken in the Russian Federation to solve the problem of excessive food price volatility include a mechanism for government procurement and commodity interventions. In addition, Russia is implementing a price regulation policy for socially significant food products[8]: some types of meat, dairy products, cereals, chicken eggs, sunflower oil, sugar, salt, wheat flour, tea, bread, some types of vegetables and fruits. Restrictions may be introduced for a period of no more than 90 days in case of price increase of more than 30% within three months [40–42].

This is how the Index of agricultural production was presented in comparable prices against the previous year (Figure 6) [26]. In 2021 it was 99.6%, in 2020 it was 101.3% [27], in 2019 it was 104.3% [28], in 2018 it was 99.8% [29], in 2017 it was 102.9%, in 2016 it was 104.8%, in 2015 it was 102.1%, in 2010 it was 87.9%.
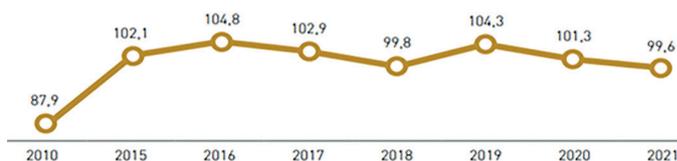

Figure 6. Index of agricultural production in comparable prices against the previous year, %

The country is implementing a departmental project of the Ministry of Agriculture of the Russian Federation "Digital Agriculture" [43]. Within its framework, a set of measures is provided for the introduction of digital technologies and platform solutions in the agro-industrial complex, the achievement of productivity growth at "digital" agricultural enterprises by 2 times by 2024. Measures are also being implemented to stimulate the development and promotion of a healthy lifestyle and healthy nutrition of the population in order to change the eating habits of the population[9] to help eliminate the excess of the calorie content in the population's diet over the level of energy consumption, as well as the excess content of fat and sugar in consumed products.

It should be noted that the concept of agrifood systems sustainability [44] is constantly being worked on[10]. Thus, the following principles of development were adopted (Figure 7).

SWOT analysis for the agrifood systems sustainability

Taking in consideration the above, it is necessary to assess the internal and external factors that affect the sustainability of agrifood systems [45]. Thus, SWOT analysis [46] was applied, i. e. a strategic planning method for considering development opportunities by identifying strengths, weaknesses, opportunities and threats (Figure 8).

Based on the analysis, it can be concluded that the goal of policies for the development of agrifood systems sustainability should be to ensure food security, promote a balance between economic and environmental challenges and increase the resilience of the global agrifood system to shocks such as conflicts [47], pandemics and extreme weather events [48–50].

Conclusions

The Russian Federation is committed to achieving the goals set by the international community in the 2030 Agenda for Sustainable Development. Continuous efforts are being made to achieve the sustainable development goals (SDGs) at the national level.

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[5] Federal scientific and technical program for the development of agriculture for 2017–2030 (Decree of the Government of the Russian Federation dated August 25, 2017, No. 996). Retrieved from https://docs.cntd.ru/document/436761964. Accessed March 2, 2023. (In Russian).

[6] State program for the development of agriculture and the regulation of markets for agricultural products, raw materials and food (Decree of the Government of the Russian Federation dated July 14, 2012, No. 717). Retrieved from https://docs.cntd.ru/document/902361843. Accessed March 2, 2023. (In Russian).

[7] Federal target program "Sustainable development of rural areas for 2014–2017 and for the period up to 2020" (Decree of the Government of the Russian Federation dated July 15, 2013, No. 598). Retrieved from https://docs.cntd.ru/document/499034090. Accessed March 2, 2023. (In Russian).

[8] On approval of the rules for establishing maximum permissible retail prices for certain types of socially significant essential food products, a list of certain types of socially significant essential food products, for which maximum permissible retail prices can be set, and a list of certain types of socially significant food products, for the purchase of a certain amount of which an economic entity engaged in trading activities is not allowed to pay remuneration (Decree of the Government of the Russian Federation dated July 15, 2010, No. 530). Retrieved from https://legalacts.ru/doc/postanovlenie-pravitelstva-rf-ot-15072010-n-530. Accessed March 2, 2023. (In Russian).

[9] Strategy for the formation of a healthy lifestyle of the population, prevention and control of non-communicable diseases for the period up to 2025 (Order of the Ministry of Health of the Russian Federation dated January 15, 2020 No. 8). Retrieved from https://rulaws.ru/acts/Prikaz-Minzdrava-Rossii-ot-15.01.2020-N-8. Accessed March 2, 2023. (In Russian).

[10] Strategy for the development of agro-industrial and fishery complexes of the Russian Federation for the period up to 2030 (Decree of the Government of the Russian Federation dated September 8, 2022, No. 2567-r). Retrieved from https://docs.cntd.ru/document/351735594. Accessed March 2, 2023. (In Russian).
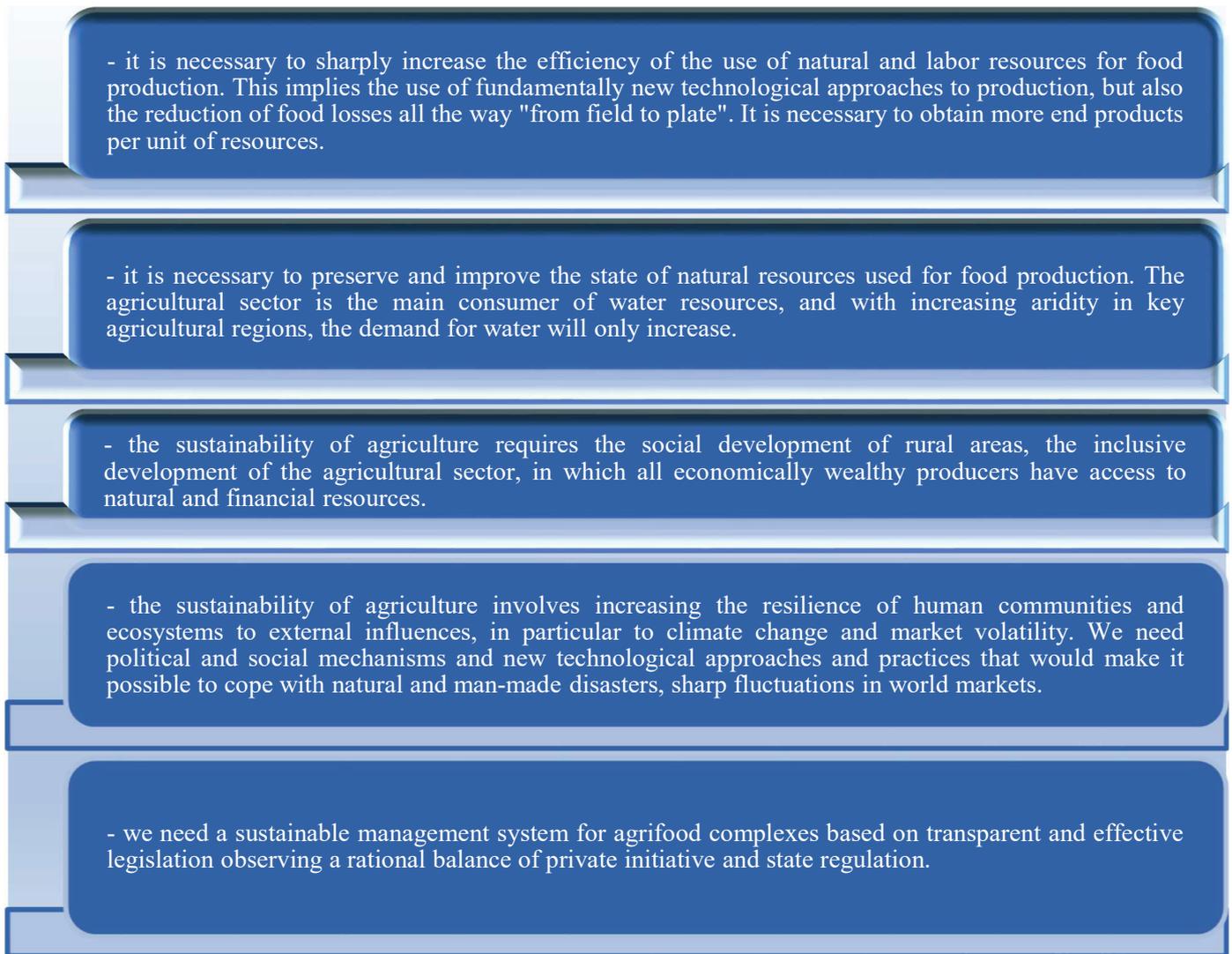
- it is necessary to sharply increase the efficiency of the use of natural and labor resources for food production. This implies the use of fundamentally new technological approaches to production, but also the reduction of food losses all the way "from field to plate". It is necessary to obtain more end products per unit of resources.

- it is necessary to preserve and improve the state of natural resources used for food production. The agricultural sector is the main consumer of water resources, and with increasing aridity in key agricultural regions, the demand for water will only increase.

- the sustainability of agriculture requires the social development of rural areas, the inclusive development of the agricultural sector, in which all economically wealthy producers have access to natural and financial resources.

- the sustainability of agriculture involves increasing the resilience of human communities and ecosystems to external influences, in particular to climate change and market volatility. We need political and social mechanisms and new technological approaches and practices that would make it possible to cope with natural and man-made disasters, sharp fluctuations in world markets.

- we need a sustainable management system for agrifood complexes based on transparent and effective legislation observing a rational balance of private initiative and state regulation.

Figure 7. Principles of agrifood systems development

S - Strengths:

- state support;
- development of rural infrastructure;
- implementation of complex sectoral strategic programs

W - Weaknesses:

- the state of the material and technical base of agriculture;
- weak renewal of funds;
- backlog in technical and technological modernization of production;
- degradation of the quality of agricultural land and a large amount of unused land

O - Opportunities:

- increasing the efficiency of using natural and labor resources for food production;
- introduction of a sustainable management system for agrifood complexes

T - Threats:

- food threat;
- social threat;
- economic threat;
- financial threat;
- COVID-19 pandemic;
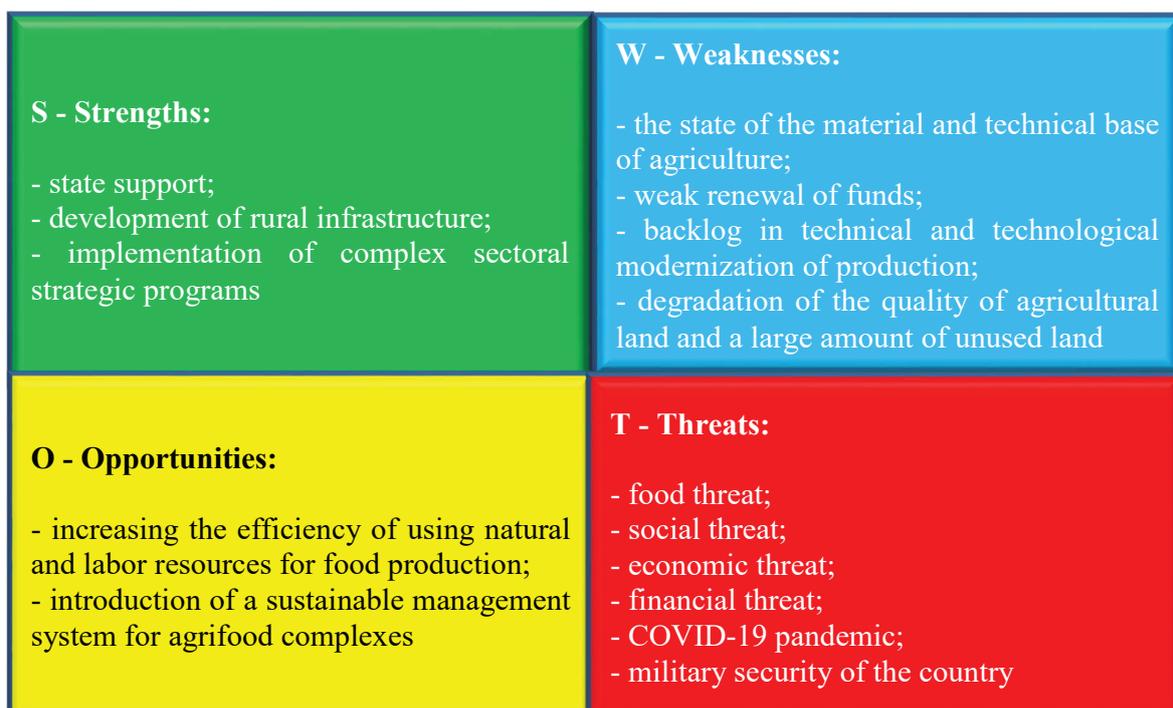- military security of the country

Figure 8. SWOT analysis of agrifood systems sustainability

Significant progress has been made in Russia towards achieving SDG 2 "End hunger, achieve food security and improved nutrition and promote sustainable agriculture", i. e. the level of food insecurity of the population is steadily decreasing, and only 0.1% of households report lack of money for food.

The development of Russia's potential in achieving SDG 2 is facilitated by such factors as the development of rural infrastructure and the implementation of comprehensive sectoral strategic programs.

Today, agriculture in Russia is the most dynamically developing sector, showing relatively high rates of development.

The situation with food safety has significantly improved over the past decade: the share of rejected products in the total volume of inspected goods is decreasing for all product groups, the share of products that do not meet hygienic requirements is decreasing sharply too. An equally important indicator of the positive situation with food security in the country is the presence of a clearly defined national policy in this area.

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