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Green economy: preconditions and directions of development in the agricultural sector

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Abstract. The most intense trend in the modern economy is the introduction of a green economy as one of the main conditions for maintaining a balanced state of the environment for future generations. The strategy of "green" development is becoming increasingly used in different countries. Green growth is a strategy for transforming an economic system in which investments in environmental resources and services become the driving force of economic development. The success of the strategy depends not only on political will but also to a greater extent on centralized funding and planning for green programs. The need to implement the concept of a "green" economy is particularly acute in agricultural production.

1. Introduction

The most dynamically growing trend in the modern world is the development of the green economy as one of the main conditions for the preservation of nature and the environment for future generations. Polluting the planet for many years, the world community has reached the point of no return in the process of development of resources, extraction of raw materials, forced urbanization of territories.

Over the past two decades, environmental issues have become very significant. The problems of environmental pollution, depletion of natural resources and, as a consequence, the negative impact of environmental factors on human health make us look for ways to solve them. The interrelation of ecological and economic spheres is the basis of sustainable development of territories and "green" economy. Taking into account the influence of environmental factors in the development of programs for the development of territories, investment policy should not be ignored. That is why this issue is widely discussed both among scientists and among government and political figures [1].

The "green" economy is able to save humanity from the ecological crisis. The main functions of the "green" economy are to reduce emissions of harmful substances into the atmosphere, the rational use of the wealth of nature, improving human well-being and ensuring social justice for future generations. The "green" economy is now widely covered in the scientific literature.

Among foreign scientists, this problem in their research is affected in the works of H Wheeler, J Lernoud, B Huber, A Sahota [2], M Kenneth [3], A Davis [4], K Jones, P Romer [5] and many others.

Among the Russian scientists involved in the theoretical and methodological aspects of the sustainable development of a "green" economy, environmental protection, environmental management, it is necessary to highlight V Anufriev, B Porfiriev, J Mingaleva, L Deputatova, Yu



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Starkov, T Zakharova, E Zlobin, O Safoshina, A Izmailov, V Abdrakhimov, D Lobachev, L Kuzina, J Tkach, I Potravny, A Novoselov, I Gangut and others.

The authors of most of the works are in solidarity with the traditional definition of a green economy, given by experts of the United Nations (UN) on Environmental Protection (UNEP). The essence of the definition is that a green economy is an economy that provides long-term improvement of human well-being and reduction of inequality without risks to the environment or an economy that promotes social progress, sustainable consumption, and production [6].

Another interpretation of the green economy is the economy aimed at improving the welfare of people and ensuring social justice.

In works about green economy T Zakharova [7] prefers this definition of the green economy: "The green economy is interdepartmental in nature. These are transport, buildings and their complexes, energy, water supply, food and life support, forestry and agriculture, waste disposal and recycling, human capital (education and culture)."

I Potravny [8,9] includes those types of economic activities to the green economy that on the basis of modernization and increase of production efficiency contribute to improving the quality of life and living environment. The author also notes the high science intensity of green innovations and discoveries, providing an accelerated transition to a new (6th) technological order, which will be decisive in the near future (2010-2050).

E Varavin, M Kozlov point to the need for socio-ecological and economic effects in the course of environmental transformation of the economy [10].

In a number of works, it is rightly noted that modern natural crises, dangerous in themselves, also cause failures of the market mechanism, slowing down the growth of welfare of the population of all planet. That is why the idea of a green economy that promises to gradually erase social differences, increase natural resources and improve the human environment is of increasing interest.

The agro-industrial complex of Russia is a perspective, wide-format strategic branch within which interests of wide layers of the population at the level of functioning of regional development are concentrated [11]. The introduction of the concept of "green" economy is the key to the economic security of the country, which must be implemented, including for the implementation of the policy of import substitution, resource savings and the development of production, trade and economic opportunities. Russia will be able to use raw materials for another century, after that, only alternative energy production will be able to meet the needs of the socio-economic system of the state.

Of particular relevance is the selected issues in connection with the increased socio-economic importance of greening agricultural production and the implementation of the concept of the "green economy" both in the Russian Federation and in the agricultural sector, in particular.

2. Materials and methods

To achieve the goals and objectives of the study, General scientific approaches and methods were used – system analysis, abstract-logical, monographic, generalization, and systematization.

The "green" economy is now seen as the basis for sustainable development (a new vector, the engine of sustainable development), and its main tools are considered to be innovative "green" technologies. These technologies are based on energy and resource saving, reduction of carbon emissions, clean transport, alternative energy sources, organic agriculture, eco-development (construction of real estate using environmental approaches), advanced logistics and many other components that allow the economy to develop without damage to nature and most importantly – to preserve the ecological well-being of man [12]. Governments, businesses, and consumers around the world have adopted a green economy strategy. The expansion of green ideas is typical for such countries as China, South Korea, Japan, India, Brazil, Argentina, Germany, Sweden, Denmark and other European countries, Australia, Russia, Kazakhstan, USA, etc.

In the history of the development of world problems of environmental protection can be divided into 3 stages, and each stage is characterized by a certain understanding of the relationship between the environment and the economy (Table 1).

Table 1. Stages of formation of ecological consciousness.

Stage	Content	Activities and documents
Stage 1. 1950-1970's	The emergence of global environmental awareness and environmental movement, which came with the awareness of the dangerous impact of the economy on the environment and human through chemical and radiation pollution of the environment and the discussion of possible catastrophic consequences of the use of nuclear weapons, the accumulation of data on the negative impact of economic activities on the environment.	First International Conference on Air Pollution as a Response to the Growth of Smog Mortality in the Major Cities of the World, United Nations Conference on the Human Environment in Stockholm, United Nations Environment Program.
Stage 2. 1980-1990s	The concept of "cleaner production" was created.	The concept of sustainable development of the world, the world Charter of nature, the UNEP "cleaner production" programme, etc.
Stage 3. 2000-2015s	Consolidation of the concept of "green" economy in international and national legislation, in the business environment, public discussions and the media is associated with closer attention to the social component	The UN program "Global Green" new course (2009), the UN Conference on Sustainable Development "Rio + 20" (2012), the Climate Summit in Paris (2015), etc.

A green economy is a new model of economic development, the goal of which is to improve the well-being of the population and achieve social equality while reducing environmental risks and ecological scarcity [13].

Initially, the green economy is divided into seven key areas of influence and development:

1. Introduction of renewable energy sources. The issue of the further preservation of mineral resources is gaining enormous proportions. Oil and gas around the world are classified as one of the largest energy resources, but even they are exhausted in due time, and therefore it is necessary to find new resources for life.

2. Energy efficiency in housing and communal services. Due to the fact that a significant part of the urban housing stock was built in the post-Soviet period, most residential complexes are equipped with inefficient thermal insulation structures and heat supply systems, which leads to significant heat losses. The theory of "green" economy implies the action of specialized energy-oriented services designed to implement measures in the field of Troubleshooting and shortcomings of heat supply devices, thereby minimizing heat losses.

3. Organics in agriculture. First of all, this direction considers the rejection of synthetic fertilizer products (pesticides), various feed additives. We are talking about the use of organic fertilizers to ensure productivity, growth of cultivated plants. "Greening" of agriculture will provide food to the population without harming the environment. This vector of "green" economy is divided into the following components: soil yield management; effective water management; management of flora and fauna; mechanization, modernization, and clustering of farms.

There are four types of innovations in agricultural production, as in one of the areas of "green" economy: breeding and genetics; technical-technological and production; organization management; social-ecological (Table 2).

Table 2. Classification of types of innovations in agriculture.

Type of innovation	Essence
Selection and genetic	New varieties and hybrids of agricultural plants, new breeds, types of animals and crosses of birds, selection of plants and animals resistant to diseases and pests, adverse environmental factors.
Technical and technological and industrial	Use of new equipment; resource-saving new technologies in agriculture and animal husbandry; new waste-free technologies of production and storage of food products aimed at improving their nutritional qualities.
Organizational, managerial and economic	Development of cooperation and the formation of integrated structures in agriculture; progressive forms of maintenance and resourcing of agriculture; new forms of organization and management in agriculture; the creation of innovation and advisory systems in the field of scientific, technical and innovation activities; modern forms and mechanisms of innovative development.
Socio-ecological	Updating of the personnel training system, improvement of labor protection, solution of problems of medicine, culture, and education, workers of settlements, villages. Improvement and greening of the environment. Ensuring favorable environmental conditions for life, work, and leisure of the population

4. Improvement of the waste management system. The problem of waste management has become particularly popular. Increasingly, there are dirty streets, landfills and the lack of any control over what is happening. In connection with the circumstances, it is proposed to use waste as a secondary product of the production cycle. For example, the technology of complex processing of solid waste and alternative fuel is already being implemented in the Republic of Kazakhstan.

5. Improvement of water resources management system. Water remains a key natural component of human existence and the integrity of ecosystems. In this regard, the rational use of water resources remains a problem of enormous scale.

6. Development of "clean" transport. Work in this direction, first of all, contributes to the reduction of greenhouse gas emissions.

7. Conservation and effective management of ecosystems.

3. Results and discussion

In the context of globalization of the world, economy increases the dependence of the economy on the international market. A feature of modern structural transformations is adaptation not only to internal conditions but also to new conditions of the world economy. This applies both to countries long established in the World Trade Organization (WTO) system and to Russia. The General Assembly of The United Nations (UN) declared 2011-2020 the UN decade for the conservation of biological diversity and natural ecosystems. The UN Specialized Agency for the Promotion of the Industrial Development of Underdeveloped and Developing Countries (UNIDO) has developed a strategy to support the environmentally sustainable development of the territories. Approaches and tools used in the new UNIDO strategy: attracting investments in cleaner production, modernization, transfer of environmentally friendly technologies, education and training of specialists.

Russia's WTO membership has automatically imposed a number of key requirements, including compliance with the principles of the green economy. The active foreign economic activity of Russia with the member States of the Commonwealth of Independent States (CIS), the Eurasian Economic Union (EAEU) and the European Union (EU), which purposefully develop and implement the strategy of "green" development, requires increased funding and support of the eco-industrial Park.

Russia has a huge resource potential for the transition to a green economy. According to the World Bank estimates, the share of natural capital in the structure of Russia's national wealth is about 70%, while human capital accounts for 20%, and physical capital - 10%. In developed countries, the Organization for Economic Cooperation and Development accounts for only about 5% of natural capital.

In Russia, the importance of "green" growth is noted in the well-known report "Strategy 2020: New growth model - new social policy". It emphasizes that the content of the Federal policy in the field of environmental development of the country should be a strategy of "green" growth, providing for the integration of socio-economic and environmental development in the form of a green economy. The objectives of the state policy in the field of environmental development are environmentally oriented economic growth, preservation of a favorable environment, biological diversity and natural resources. The strategy considers the option of transforming the world economy into a low-carbon, resource-efficient economy by 2050 as a promising development, and the main mechanism for implementing this prospect is the annual investment of approximately 1.3 trillion rubles during 2013-2050. doll. (about 2% of global GDP) in ten key sectors. It is assumed that the implementation of this perspective will provide for 5-10 years a higher annual growth rate of the economy than investment in conventional development, in the absence of negative consequences for the environment [14].

The green economy implies not only the introduction of renewable energy sources, energy-efficient technologies in housing and communal services, waste management, but also the production of organic products in agriculture. First of all, this direction involves the rejection of synthetic products, fertilizers (pesticides), various feed additives.

Currently, the Federal Law dated 03.08.2018 No. 280-FL "On Organic Products" has been adopted, which comes into force on January 1, 2020. The law defines the legal regulation of relations in the field of the production of organic products, establishes requirements for the production and confirmation of compliance with the production of organic products, for their labeling. This law regulates the introduction of special measures of state support for manufacturers of environmentally friendly products.

The Chuvash Republic has key prerequisites and sufficient potential to create a "green movement". The agricultural potential of the region is the basis, the Foundation of future changes, both in the entire economy of the Republic and in the "green movement" in particular.

Agriculture of Chuvashia does not have a pronounced bias in crop production (53%) or livestock (47%), but it is distinguished by some features. The main one is the predominance of private farms in total production. More than half of agricultural products are produced in private farms of the Chuvashia population (54 %). The share of peasant (farmer) farms accounts for about 8 % of total agricultural production. Due to financial constraints, many smallholders and smallholders are forced to carry out their activities mainly in traditional ways with minimal use of chemicals, mechanization, etc., which aligns their activities with the principles of organic farming. In addition, there is some specificity in the distribution of agricultural production by type of agricultural producers. As of January 1, 2017, 331 agricultural organizations, 1244 farms, 91 individual entrepreneurs, more than 245 thousand private farms, 664 non-profit associations of citizens carried out their activities in the field of agriculture in the Chuvash Republic. The total area of agricultural land is 704.4 thousand hectares, including 95.5% is actually used. 58% of all agricultural land consists of agricultural organizations, 21% to farm and 20% to individual households. The largest share of peasant farms are in the production of grain (33.3 %), private farms – in the production of potatoes (73.5 %), milk (64.2 %), wool (97.1 %); the share of peasant and private farms accounts for 86.4 % of vegetable

production. Farmers and rural population, expanding their activities, ensure more efficient use of land, labor, material resources of the region.

In January 2017, the Head of Chuvashia signed the Decree “On the implementation of public infrastructure development projects in the territory of the Chuvash Republic”. This document provides for the possibility of allocating subsidies from the national budget for the implementation of citizens' initiatives. In addition, it is supposed to entrust the Department of Innovation, Sectoral Development and Agriculture of the Ministry of Agriculture of the Chuvash Republic with the development of departmental target programs aimed at developing and promoting the concept of a green economy in the region.

The main priority areas of the concept for the transition to a "green" economy should be:

- 1) improving the efficiency of the use and management of resources (water, land, biological, etc.);
- 2) modernization of existing and construction of new infrastructure;
- 3) improving the well-being of the population and the quality of the environment through cost-effective ways to reduce pressure on the environment.

In order to competently build a vector of "green" economic growth of the Chuvash Republic, in addition to a promising concept of development, an effective regulatory framework, creating a specialized body that coordinates and systematizes processes and communications, it is important to have an idea of various ways of state support of this direction and translate them into a specific mechanism.

State support for green business should be a priority for green activity in the field of agricultural production (figure 1).

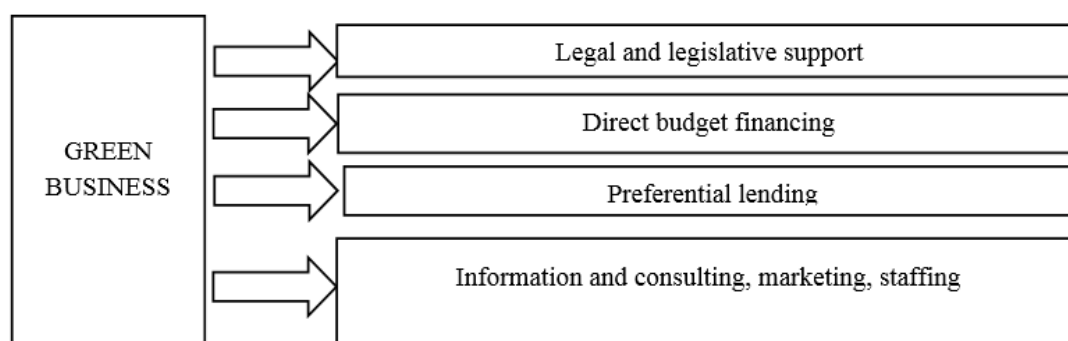


Figure 1. The system of state support of "green" business.

Sources of financing "green" business should be determined by the available credit resources and state budget funds. The implementation of this mechanism in the agrarian sphere involves the regulatory and legal framework for "green" activities, the protection of intellectual property and their introduction into economic circulation, the development of the infrastructure of the "green" process and the promotion of scientific and technological developments in production.

It becomes obvious that without green technologies that solve many social problems, it is impossible to ensure the creation of high-paying jobs, to intensify the innovative development of the economy and, moreover, to improve the health of residents of large cities. According to its natural potential and vast territory, Russia is already recognized as one of the most environmentally sustainable superpowers in the world, and now its most urgent task is to improve the environmental situation in megacities and regions with the help of green technologies and thereby improve the quality and life expectancy of Russians.

4. Conclusion

The problem of developing a "green" economy is closely intertwined with the implementation of import substitution programs, ensuring food security in the regions, stimulating the development of

small and medium businesses, supporting competitive exports, creating conditions for the social and economic development of rural areas, implementing environmental policies, etc.

Today, the leadership of many regions of the Russian Federation, including the Chuvash Republic, realizing the promise of the “green” movement, has shown interest in it and is ready to support its producers by providing them with financial and non-financial support.

Analysis of the existing prerequisites indicates that the market of environmentally friendly products and organic agriculture in Russia are at the stage of formation. Large-scale work is required on the environmental assessment of territories and soils, creation of certification systems, information and training of producers and consumers, etc.

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