



Regulatory and Legal Provision of Sustainable Development Risk Management in the Agro-industrial Complex: An Overview of International Experience

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Abstract

This research is aimed at structuring, analysing and generalisation of the international experience of managing the risks of sustainable development of the agro-industrial sector of the economy in the context of achievement of the Sustainable Development Goals at the regional and national levels.

We use the systemic approach, which allows, on the one hand, considering the international system of managing the risks of sustainable development in the agro-industrial complex as a whole, and, on the other hand, interpreting the existing risks and mechanisms of their management from the position of their mutual influence on the achievement of the Sustainable Development Goals. The offered methodology is supplemented by the elements of the process approach, which is implemented in the context of the legal regulation of the procedures of managing the risks of food supply chains and provision of its quality, as well as the elements of analysis and synthesis, which allows identifying the differences between regional and national systems of managing the risks of sustainable development of the agro-industrial complex.

The agro-industrial complex is a complex system, which is peculiar for specific risks in the context of the provision of sustainable development. These risks are based on the essence of agro-food production, which, in its turn, is based on the use of the elements of the natural environment as separate production factors. Based on this, we substantiate the conflicting character of the business interests of agro-industrial companies and the Sustainable

Development Goals and propose a complex of balancing the sustainable development risks of the sector. We also prove the key role of the institutional management at the international, regional and national levels, which is manifested also through the common international architecture of the regulatory and legal provision of sustainable development of the agro-industrial complex. We identify the common features and differences between the use and priority of different legal tools, based on the state of the development of the economy and the domination of certain risks.

We offer a concept of balancing the sustainable development risks of the agro-industrial complex and substantiate the character and reasons for differences in the regulatory and legal provision of managing the risks of sustainable development of the agro-industrial complex in different regions of the world.

Keywords

Sustainable development · Risk management · Sustainable development risks · Agro-industrial complex · Agro-food system

JEL Codes

K 30 · K 32 · K 33 · D 81 · F 01 · O 10 · O 13 · O 15 · O 18 · O 19 · O 40 · Q 18 · Q 30

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1 Introduction

Sustainable development in the agro-industrial complex is a specific group of challenges. Unlike other sectors of the economy, where the search for balance between profitability/competitiveness, food security and sustainability is also important, this search in agriculture is further complicated by

the spatial and agro-ecological factors, since the elements of nature in this sector are not only an external environment but also the direct production factors.

Thus, agriculture, in the context of sustainable development, is peculiar for many risks, which are connected to the problem of setting the priorities in the presented triangle (competitiveness, food security and sustainability). Management of these risks envisages their identification, monitoring and development of the measures of national policy that are aimed at their restraint, neutralisation and elimination.

In such conditions, the regulatory and legal provision of the processes of managing the risks of sustainable development in the agro-industrial complex is aimed at balancing short-term effectiveness and long-term transformation of production and logistical systems (Darnhofer, 2014) and is based on an understanding of the fact that any failure in risk management may create large problems for the achievement of the Sustainable Development Goals (Choirun et al., 2020).

Based on this, the regulatory and legal mechanisms of provision of managing the risks of sustainable development in the agro-food sector should have a sustainable architecture, based on international institutions, and take into account the regional and national specifics through the development and implementation of the specific norms, programmes and strategies.

2 Materials and Methods

The methodology of this paper consists of the systemic approach, which allows studying and reflecting the presence of mutual ties between different risks of sustainable development of the agro-industrial complex, revealing their specifics and reflecting the conceptual directions of balancing the interests of the subjects of the sector and the Sustainable Development Goals. The systemic approach also allows reflecting a comprehensive system of the regulatory and legal provision of managing the studied risks at the global, regional and national levels, characterising the mutual ties between these elements and identifying the differences in the priorities of sustainable development of the agro-industrial complex of certain countries and regions based on the domination of certain risks.

The use of the elements of the process approach and the tools of analysis and synthesis allows studying the problems of managing the risks of sustainable development in the agro-industrial complex in the context of the dynamics of global and national processes, as well as determining the differences and similarities of the examples of the regulatory and legal provision of risk management in food systems.

There is a limited number of comprehensive studies devoted to risk management of sustainable development of

the agro-industrial complex, especially in the context of the generalisation of the international experience of regulatory and legal provision of these processes. In most cases, this problem has been studied fragmentarily, within separate directions. This includes the study of the specifics of sustainable development from the position of farmers and the agro-industrial complex (Darnhofer, 2014; Negra et al., 2020; Notarnicola et al., 2017); research of the totality of risks that are peculiar to the agro-industrial complex and their interconnection with sustainable development (Komarek et al., 2020); study of the global, regional and national systems of managing the risks of sustainable development of the agro-industrial complex (Carlisle et al., 2019; Nhemachena et al., 2018; Saba, 2020; Siegel & Lima, 2020; Soriano et al., 2020; Yu & Wu, 2018); study of risk management of sustainable development of the agro-food systems in the context of supply chains management (Choirun et al., 2020; Hammoudi et al., 2009).

The main goal of this paper is to analyse and characterise the international architecture of the regulatory and legal provision of managing the risks of sustainable development of the agro-industrial complex, searching for the specifics and differences in the national systems of the management of these processes and identifying the directions for their improvement.

3 Results

The concept of sustainable development, as the basic ideology of modern production and consumption, requires a balance in production, consumption, utilisation and use of natural resources. At that, agriculture is, objectively, the key sector of the use of natural resources for the satisfaction of the food needs of humanity. Most of the modern approaches to agriculture and farming are aimed at the depletion of land resources, increase in the volume of greenhouse gas emissions, growth of the deficit of water and emission of a large volume of polluting substances, which influence local and global eco-systems. The entire food system has the task of increasing the volume of food production by 60% until 2050. In totality, the above leads to an increase in pressure on the production system of the agro-industrial complex and on the entire natural environment (Choirun et al., 2020). Under such conditions, the study of the system of managing the risks of sustainable development in the agro-industrial complex requires additional development of mechanisms that allow identifying the ones that stimulate the achievement of sustainability in the agro-industrial complex and the ones that create additional complexities (Soriano et al., 2020).

The research of the risks to the development of the agro-food sector is closely connected to the concept of the

management of sustainable development risks of the agro-industrial complex. A general classification sees five types of risks: economic, social, environmental, institutional and technological. When designating the risks to sustainable development, most researchers mention primarily the former three risks, which are most closely connected to economic solvency (possibility to compete in the market and obtain profit), social equality and affordability (access to resources, including food) and environmental sustainability (ability to use natural resources without any harm to the climate and future generations). The specific feature of these risks lies in their different directions; to balance them, it is necessary to use technological and institutional mechanisms.

The concept of balancing the above risks is presented in Fig. 1. It reflects different directions of all risks as to the state of sustainable development under the conditions of traditional technologies and institutional systems. Sustainable use of resources (reduction of the use of arable land and water and limited use of fertilizers and means of plant protection) leads to the reduction of production volumes, which aggravates the problem of food security. On the other hand, an increase in the use of natural resources allows avoiding food problems but aggravates the environmental situation, etc.

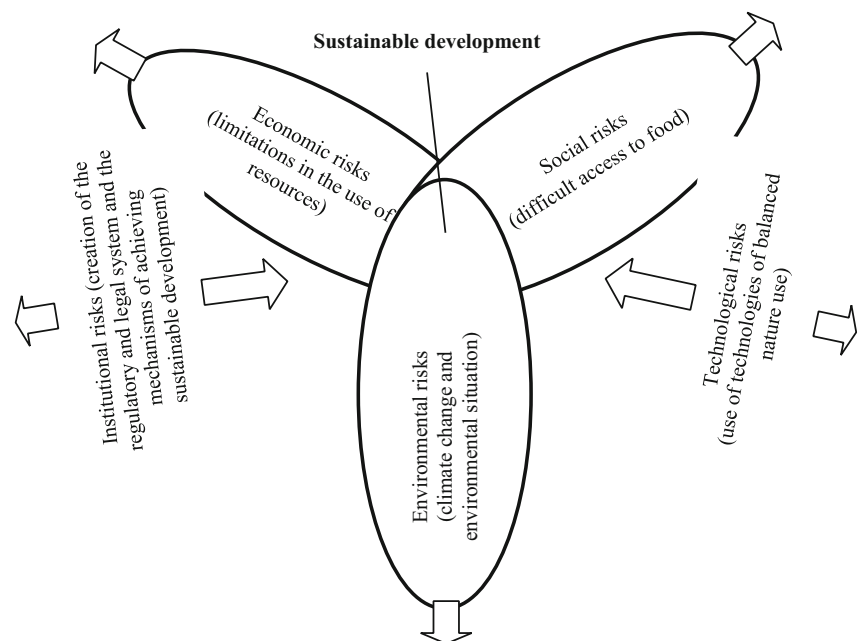
Under such conditions, the effective tools for balancing the sustainable development risks are the creation of a rational institutional system and the use of resource-saving technologies. It is necessary to take into account that errors

in the creation of the corresponding conditions might lead to the emergence of additional risks.

In the modern world, the institutional system of managing the risks of sustainable development of the agro-industrial complex has a global character and goes far beyond the limits of the agro-food sector. The general regulatory and legal architecture of managing the studied risks at the global level is a rather stable construction with a significant share of institutional maturity in the form of the system of goals, conceptual provisions and strategies. According to the existing challenges, its basis is the Sustainable Development Goals, the 2030 Agenda for Sustainable Development and the Paris Agreement, which designate the key directions of change and development.

The institutional basis of the global level includes a large list of organisations that ensure the achievement of the Sustainable Development Goals in particular directions. Apart from organisations that cover general directions, e.g., the UN Environment Programme (UNEP), Intergovernmental Panel ON Climate Change (IPCC), United Nations Development Programme (UNDP), UN Department of Economic and Social Affairs (DESA), UN Regional Economic Commissions, etc., the management of sustainable development risks of the agro-industrial complex is most fully ensured by specialised global organisations: the World Food Programme (WFP), the Food and Agriculture Organization of the United Nations (FAO) and the International Fund for Agricultural Development (IFAD).

Fig. 1 The concept of balancing the sustainable development risks of the agro-industrial complex.
Source: Developed by the authors



The activities of specialised organisations have a complex direction with a large emphasis on the achievement of five SDGs:

- SDG 1—No poverty;
- SDG 2—Zero hunger;
- SDG 8—Decent work and economic growth;
- SDG 13—Climate action;
- SDG 15—Life on land.

The global architecture of the regulatory and legal provision of managing the risks of sustainable development in the agro-industrial complex covers goals and strategy, programmes and laws. Depending on the level of development of the economy or domination of certain risks, large emphasis in the regulatory and legal field of different regions and countries is made on the use of different mechanisms, which, in its turn, requires the adoption of the corresponding legal norms.

The most comprehensive system of the regulatory and legal provision of managing the considered risks has been created in developed countries. In the EU, the agro-food system has been working for a long time according to the EU Common Agricultural Policy (CAP). The CAP is closely integrated with the concept of sustainable development and contains a set of norms and mechanisms that are aimed not only at identifying the goals and strategy but also at the creation of motivational mechanisms for their achievement, including by balancing the corresponding risks. In this aspect, the CAP includes the mechanisms of compensations for the reduction of arable lands or cattle and financial stimulation for organic farming, etc. At present, in addition to the CAP, the management of the risks to the sustainable development of the agro-industrial complex is performed through the European Green Deal and Farm to Fork Strategy (Saba, 2020), which further specify and coordinate the tasks, strategy, norms and mechanisms of achieving the Sustainable Development Goals through the search for balance between the risks to sustainable development and the use of the process approach, due to which sustainability of the food sector is ensured at all stages, from the material and technical provision and to consumption and utilisation of waste with the minimum use of natural resources and minimum harm to the environment.

A similar system of the regulatory and legal provision of managing the risks of sustainable development of the agro-industrial complex exists in the USA. The focus is made on the creation of sustainable chains of food supply, which allow achieving not only the balance of the economic, social and environmental norms but also guaranteeing quality control, the balance of nature use, etc. An important role in the

regulatory and legal provision of the management of risks to the sustainable development of the agro-industrial complex of the USA belongs to the USDA Council on Sustainable Development, different forms of dialogue between stakeholders within SPG Coalition and other initiatives of the Ministry of Agriculture (USDA, 2021).

The government of China is searching for the means to balance the sustainable development risks of the agro-industrial complex through the adoption of the corresponding laws and programmes. The main norms for managing the risks to sustainable development in China are the Sloping Land Conversion Program (SLCP), aimed at solving the problem of soil erosion, and the Major Function Oriented Zoning (MFOZ), aimed at the integration of the system of land use in the unified political system (Yu & Wu, 2018).

Unlike previous examples, in the regions of Africa, an important role belongs not so much to the risks of reduction of the production potential of the agro-industrial complex to preserve eco-systems as to the need to ensure food security and improve population's health through the improvement of the structure of food and the management of the natural risks of the lack of water, extreme temperatures and excessive erosion of soil. The key norms of management of the above risks could be found in the Comprehensive Africa Agriculture Development Programme (CAADP) Agenda, aimed at developing the national plans of investing in agriculture to achieve the Sustainable Development Goals (Nhemachena et al., 2018). Countries of Latin America, in the context of thorough work on the achievement of other SDGs, make emphasis on the fight against climate change. The resolution of these problems is supported by the implementation of the Latin American Deep Decarbonization Pathways Project (DDP-LAC) (Siegel & Lima, 2020).

Thus, the regulatory and legal provision of managing the risks of sustainable development of the agro-industrial complex has a comprehensive international system, with common goals, institutions and mechanisms. At the regional and global levels, the legal norms and programmes are specified depending on the domination of the corresponding group of risks or the level of development and institutional maturity of the economy. Despite the common initial conditions at the regional and national levels of management, the systems of the regulatory and legal provision of sustainable development risks of the agro-industrial complex have differences.

Given the absence of the balance of risks in the management of the sustainable development of the agro-industrial complex, an important condition of achievement of the Sustainable Development Goals in the sphere is the rational institutional and technological provision. The institutional provision is presented by a common global architecture of norms and programmes, which are specified at the regional

and national levels, depending on the level of development of the economy and domination of certain risks. Additional attention should be paid to the substantiation of the directions and mechanisms of technological provision for managing the risks of the sustainable development of the agro-industrial complex.

4 Conclusions

The agro-industrial complex has a range of specific features, which aggravate the problems of managing the risks of sustainable development of the sphere. The combination of economic, environmental and social risks of such type does not allow coordinating them without the use of additional mechanisms of the institutional and technological character, which also create the corresponding risks. Within the institutional provision of risk management, the regulatory and legal provision is created. It has a common architecture, which includes the Sustainable Development Goals and key programmes and institutions, which ensure the administration of processes.

At the regional and national levels, the detailing of the regulatory and legal provision takes place given the dominating risks of the political, climate or other character given the level of economic development. In developed countries, the emphasis in the regulatory and legal provision of managing the risks of sustainable development is made on the creation of sustainable chains of food supply, reduction of production capacities, etc., while in developing countries, the regulatory norms are primarily aimed at the provision of food security, improvement of the structure of natural resources or their replacement for the purpose of protection from climate change.

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