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The categorical approach to the understanding of the processes of regulating technosphere safety

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Abstract

Agriculture has always been not only a priority sector of the economy, but also determined the overall way of life. The process of its recovery from a protracted systemic crisis is slow and with many complications. Along with the emergence of certain positive trends (overcoming the downward dynamics of agricultural production and gradually increasing its volume), the actual problems remain degradation and depletion of resource potential, deterioration of technical and technological equipment, unjustified exploitation of irreplaceable natural resources. All this necessitates a radically new approach to the development of the country's agricultural sector, according to which agriculture should not only produce food and raw materials, but also contribute to the protection of the environment, ensure the development of rural areas, that is, develop on the basis of the principles of the concept of sustainable development – the fundamental basis for the coordination of economic, social and environmental factors of society.

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Keywords

Technosphere safety, development, structure, formation, regulation.

Introduction

The main provisions for sustainable development of agriculture and rural areas were formulated and adopted in 1996 at the FAO session in Rome. However, for a long period, the problem of sustainable development was considered mainly about the need to preserve the equilibrium state of the environment, without taking into account the need to ensure the overall stability of the industry, which will allow time and quality to perform its equally important functions – economic, social, cultural, etc. The economic factors of sustainable development are justified in the Hicks-Lindahl concept, according to which the condition for obtaining maximum income should be the optimal and economical use of limited resources. Social sustainability implies the preservation of social stability and diversity on a global scale, while the necessary condition for environmental sustainability is to ensure the sustainability of natural systems and their ability to self-repair and adapt to rapidly changing external conditions. In other words, sustainable development is now understood as a balanced development of economic entities aimed at gradual economic growth without harming the natural and human potential.

The main part

To characterise the properties that ensure the ability of economic entities to function in accordance with the principles of sustainable development, the concept of "sustainability" is used in economic science. In the scientific literature, this economic category is often identified with equilibrium, stability, and constancy. However, this issue is debatable. So, in the explanatory dictionary of the Ukrainian language, the concept of "stability" is defined as constancy, the ability not to change, to keep the same composition, size, not to experience fluctuations, not to be changed. S.V. Mochernyi considers stability in a similar aspect, identifying it with constancy, the ability to withstand external influences, to resist something, to exist due to unfavourable conditions. Given that "stability" is studied as an economic category, it is advisable not to identify it with constancy. At the same time, stability is proposed to be considered as the ability to function in spite of destructive processes in the environment, adapting to them or applying active resistance.

A number of scientists, adhering to the systemic approach, define stability as one of the main features inherent in natural, biological, psychological, technical, economic, social dynamic systems. In their opinion, the necessary condition for the stability of the system is not stability, but constant updating of its components. E.V. Nikolaev also devoted his scientific works to the study of the conditions for achieving stability. He claims that they are determined by internal properties of the system, according to which the resistance is the external form, the outward manifestation of the internal structure of the system, and therefore to increase its resistance to various factors, it is primarily necessary to improve the system from within. Generalisation of the above approaches allows us to conclude that the stability of the system characterises its ability not to lose properties under the influence of changes in environmental factors, by maintaining a certain state unchanged or transition from any other state to this one, i. e. a more stable system is considered to be able to undergo less deviation from a certain state when changing external factors or internal processes.

The first domestic study of the stability of socio-economic systems, in particular agricultural enterprises and the process of production of agricultural products, began during the epoch of the Soviet Union. At that time, the Russian scientist L.L. Terekhov defined the stability of the socio-economic system as a whole as its ability to function in a state close to equilibrium, under constant external and

internal influence. In modern scientific literature, the stability of an economic system is understood as a property that reflects its dynamics, which depends on numerous factors, such as inflation, growth in production, unemployment, the level of budget deficits, trade and balance of payments, national savings, the level of liberalisation of foreign economic activity, interest rates, the ratio of the number of loans sent to production or speculative operations, etc. In this case, an economic system is considered stable if none of its many factors goes beyond the permissible limits of a given trajectory of change in the state of this system. In a synergistic context, an economic system is called stable if its small perturbations lead to a slight drop in production (regression), which does not increase over time. If the specified level of production is restored over time, then such a system is called asymptotic stable. It should also be noted that the stability of the economic system is ensured by the stability of its structural elements. Thus, the stability of enterprises is one of the determining factors in the formation of stability and maintaining the efficiency of the relevant industry and the economy as a whole.

For agriculture, the problem of ensuring and maintaining sustainability is particularly relevant, which is caused by the following factors. First, agriculture is one of the main sectors of the economy, on the stability of which depends the food security of the country and the functioning of many processing industries. Secondly, agriculture remains one of the main employers in rural areas and is an economic sector that ensures the preservation of the natural and cultural landscape. This realisation prompted scientists to study this problem in the first half of the 20th century, the definitions of sustainability of agricultural production appeared in economic literature, which was understood as a decrease in fluctuations and growth of yields. The next period of increasing attention of scientists to the issues of sustainability of agriculture began in the 1980s, which was caused by the growing influence of its sustainability on the level of development of the entire agricultural sector and other non-agricultural industries. At that time, it they considered production sustainable only if it could provide a certain set of specific needs with minimal costs and in the shortest possible time, according to the available resources and opportunities for their effective use.

Now sustainable agriculture is understood as a system of its management, which provides a constant and sufficient supply of the needs of the population in food and processing industry, in raw materials, subject to effective economic activity without harming the environment on the basis of advanced environmentally oriented technologies. A more thorough and broader definition of sustainable agriculture has been filed by the U.S. Department of Agriculture in the sustainable agriculture research and training and development programs of the Advisory Cooperative Service. According to this document, sustainable agriculture is an integrated system of crop and livestock production, has a specific nature for a particular area and the ability to meet human needs for food and raw materials; improve the quality of the environment, preserve and create a basis for the reproduction of natural resources used in agriculture; ensure the most effective use of irreplaceable and on-farm resources, coordinate, if possible, biological cycles and measures for their management; improve the quality of life of farmers and society as a whole. From the logic of the above, it can be argued that the concept of "sustainability of agriculture" in modern science is invested with a broader meaning, which is seen as the ability not only to meet food and raw materials needs on the basis of effective use of existing potential, but also to create favourable conditions for the reproduction of natural and human potential.

In most countries of the world, the problem of ensuring the sustainability of agriculture is considered comprehensively and includes achieving the sustainability of agricultural production and

rural areas. Stability of production is usually viewed as the ability to maintain its volume in accordance with changes in demand and market conditions, which requires the formation of the ability to resist the negative impact or use it with effect for the economy, to prevent or reduce the decline in production. This process can involve both growth and reduction of production volumes. The main condition for these changes should be their compliance with the market situation and the minimisation of losses, and this can be achieved by compensating them from the income received.

Sustainability of agriculture is achieved through ensuring the sustainability of agricultural enterprises, which can be understood as the ability to maintain the volume of sales of products (works, services) for a long period of time, taking into account changes in consumer demand and the market of producers. The point of view of many scientists is that the most significant factor in the stability of an enterprise is its economic stability, which contributes to and ensures the achievement of stability in all areas of its activities (industrial, commercial, social, environmental, etc.). This makes it necessary to use the concept of "economic stability of an enterprise" as a separate complex category that characterises economic entities and the consequences of their activities.

Economic stability of an enterprise as an economic category reflects the influence of a set of factors that ensure its sustainable development. In a broad sense, the economic stability of an enterprise is defined as a set of properties of organisational, innovative, industrial, financial and credit activities, taking into account their interaction and mutual influence, as well as the number of products that are produced, and its innovative properties, scientific and technical development of the material base, the stability of the entire range of resources, the development of human and intellectual potential, the presence of innovative management. Economic stability is the most important characteristic of business activity and reliability, an essential component in assessing the potential of an enterprise, in determining its competitiveness. It characterises the stable position of an enterprise, its ability to work profitably. However, it should be understood that the company is a multi-functional structure, the primary goal of which, along with achieving and maintaining high financial results, should be its comprehensive development based on the optimal use of existing potential. That is why economic stability is not appropriate to identify with stability, because it is a dynamic indicator that reflects the ability to maintain optimal proportionality in the development of production, the ability to adapt to rapidly changing environmental factors and use them with the greatest effect to achieve strategic goals.

It is worth noting the position of O.V. Mikhalev, who believes that economic stability should be the main goal of economic management, and enterprises in modern conditions should be both macro- and micro-economically stable. At the same time, microeconomical stability is understood as the possibility for an agricultural enterprise to function for a long time as the main economic unit; macroeconomic stability is the provision of products for the domestic market and competitiveness in foreign markets. However, it is impossible to fully agree with this statement, since the purpose of economic activity of agricultural enterprises is to obtain economic, social and environmental effects, while economic stability is the basis for its achievement, the basis for the viability and development of enterprises in a changing competitive market environment.

Some scientists distinguish between internal and external economic stability of an enterprise. The internal economic stability of an enterprise reflects the state of its potential, material and value (monetary) structures of production and its dynamics, which provide stable high natural-commodity and financial results of an enterprise. External stability relative to the business entity is determined on the basis of the stability of the economic environment in which it operates. Timely and flexible

management of internal and external factors affecting the results of its activities is the basis for achieving internal stability of an enterprise. External stability is achieved by appropriate macroeconomic regulation of the market economy. However, this interpretation of forms of stability is not quite adequate and rational. In particular, the definition of external stability characterises the stability of the external environment, and not the ability of the enterprise to adapt to it. It is more expedient to consider economic stability of an enterprise in the context of satisfaction of needs and interests of internal and external participants in economic activity. Thus, internal economic stability reflects the extent to which the existing internal economic mechanism of an enterprise contributes to the effective use of its potential and meet the economic needs of internal participants in economic activity (owners, shareholders, employees). External stability of an enterprise characterises its ability to meet the needs of external participants in economic activity (the state, the population, consumers and suppliers) in the long term.

Economic stability of an enterprise determines certain principles of its functioning. Firstly, a company must be able to operate in a cost-effective mode without disruptions of technological processes, production decline. Unforeseen deviations from the optimal regime, especially in the agricultural sector, have, as a rule, significant negative consequences, in particular, a decrease in the quality of agricultural products, lost profits. Secondly, in order to achieve sustainability, the enterprise structure must be able to withstand adverse conditions and factors (climate, organisational, market conditions, economic, etc.). This ability, if necessary, should include the ability to withstand adverse conditions, as well as the ability to quickly reorient production to produce a new type of product in the event of a change in market conditions or a natural disaster. For example, in crop production, with the death of winter crops, it is possible to quickly replace them with spring crops. Thirdly, each agricultural economy must have in its organisational and production structure sufficient capacity and the necessary reserves to overcome force majeure, both subjective and objective, i. e. it is necessary to have the means that could, if necessary, within a relatively short period of time to replace the main. At the same time, there should be a well-established system of providing an enterprise with production resources, the existing reserves should not burden it with unnecessary costs.

Therefore, the economic stability of an enterprise is the ability to effectively use its potential, adapt to dynamic changes in the external environment, and meet the economic needs of all participants in economic activity in the long term.

The question of components of economic stability of an enterprise and their priority is debatable. A number of economists reasonably believe that the main in determining the economic stability of an enterprise is its financial component, or even identify these two concepts. In particular, O.V. Tchaikovskaya identifies the economic stability of an enterprise with market stability, defining it as equilibrium, balanced state of financial, material and labor resources, which provides stable profitability and normal conditions for expanded reproduction. The main components of sustainability, in her opinion, are financial, price and resource. The financial stability of an enterprise is understood as the financial resources, with a rational management ensures the availability of sources of own funds, stable profitability and ensures that the process of expanded reproduction and social development; price – the combination of flexibility and stability of the system of prices and margins, which contributes to the balancing of supply and demand; under resource sustainability – the optimal structure of labour and material resources that ensures effective functioning of an enterprise.

A somewhat different opinion is defended by T.B. Berdnikova. She considers economic stability

of an enterprise as one of the main conditions for effective management, and its main components include production, investment, financial, commercial, social and environmental sustainability. At the same time, the determining factor is production stability, which serves as a basis for the stability of other spheres of activity of economic entities. Its position is based on the fact that the economic conditions of management are designed to ensure the production stability of the enterprise and on this basis to develop other types of its stability.

In L.Yu. Piterskaya's understanding, the main components of an enterprise's economic stability include its financial and production stability, which are determined by the optimal production structure, the efficiency of using the production potential, and the level of production and financial risk. At the same time, N.V. Shandova, investigating the stability of economic activity of enterprises, presents it as a set of production, marketing, socio-economic and environmental components.

Conclusion

Summarising the above, it is worth noting that the researchers identify various components of economic stability of an enterprise, such as production, technological, organisational, financial, resource, investment, market, interface, social and environmental ones. Taking into account the specifics of the functioning of agricultural enterprises, their economic stability is ensured by achieving the appropriate criteria of production, financial, resource, market, interface, social and environmental sustainability, forming a single integrated system. Each of these components is determined by a number of internal factors and properties of an enterprise. Therefore, the study of economic stability in this form will be the most rational thing to do, since it makes it possible to avoid re-evaluation of factors in determining its level.

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Формирование категориального подхода к пониманию процессов регулирования обеспечения техносферной безопасности

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Аннотация

Сельское хозяйство не только является приоритетной отраслью экономики, но и определяет общий уклад жизни. Процесс его выхода из затяжного системного кризиса идет медленно. Наряду с определенными позитивными тенденциями (преодоление нисходящей динамики сельскохозяйственного производства и постепенное увеличение его объемов) существует и ряд проблем, к которым можно отнести деградацию и истощение ресурсного потенциала, износ технического и технологического оснащения, неоправданную эксплуатацию невозполнимых природных ресурсов. Все это диктует необходимость кардинально нового подхода к развитию аграрного сектора страны, согласно которому сельское хозяйство должно не только производить продовольствие и сырье, но и способствовать охране окружающей среды, обеспечивать развитие сельских территорий, т. е. развиваться на основе принципов концепции устойчивого развития – фундаментальной основы координации экономических, социальных и экологических факторов общества.

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Ключевые слова

Техносферная безопасность, развитие, структура, формирование, регулирование.

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