

ECOLOGICAL AND ECONOMIC ASPECTS OF THE DEVELOPMENT OF INTEGRATION PROCESSES IN THE AGRO-INDUSTRIAL COMPLEX

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Formulation of the problem. Despite the existing significant contribution to solving the integration process development problems it should be noted that the problems of ecological and economic development of integration processes in the agro-industrial complex have not been studied comprehensively. *Purpose of article.* To study domestic and foreign theory and practice of the integration relationships formation in the field of agro-industrial production, to identify the main factors of environmental and economic interaction of enterprises and industries of the agro-industrial complex. *The object of research* is integration processes in the agro-industrial complex. *Methods used in research.* The theoretical basis for the research was the works of scientists on the issues of cooperative-integration relations in the agro-industrial complex. In the course of research, the following methods were used: abstract-logical, monographic, comparative analysis, etc. *The hypothesis of the study.* The study of the problems of ecological and economic development of integration processes in the agro-industrial complex will make it possible to determine the strategic directions of sustainable development of even a separate region. *Presentation of the main material.* Identification of a number of factors of environmental and economic interaction between enterprises and industries of the agro-industrial complex on the basis of their integration in the context of increasing the competitiveness of production and products. *Originality and practical value.* The scientific novelty of the research lies in the development of theoretical and scientific-methodological approaches to solving the ecological and economic problems of the region's development. *Conclusions.* Attainment of ecological and economic balance in the conditions of the formation of scientifically based tools for the enterprises and industries of the agro-industrial complex interaction.

Key words:

integration processes, factors, interaction, balance, efficiency.

ЕКОЛОГО-ЕКОНОМІЧНІ АСПЕКТИ РОЗВИТКУ ІНТЕГРАЦІЙНИХ ПРОЦЕСІВ В АГРОПРОМИСЛОВОМУ КОМПЛЕКСІ

Постановка проблеми. Незважаючи на наявний значний внесок у вирішення проблем розвитку процесу інтеграції, необхідно відзначити, що проблеми еколого-економічного розвитку інтеграційних процесів в агропромисловому комплексі комплексно не досліджувалися. *Мета статті* - дослідити вітчизняну і зарубіжну теорію і практику формування інтеграційних взаємовідносин у сфері агропромислового виробництва, виявити основні фактори еколого-економічної взаємодії підприємств і галузей АПК. *Об'єкт дослідження* – інтеграційні процеси в агропромисловому комплексі. *Методи, використані в дослідженнях.* Теоретичною основою для досліджень послужили праці вчених з питань кооперативно-інтеграційних відносин в АПК. У процесі досліджень застосовувались такі методи: абстрактно-логічний, монографічний, порівняльного аналізу. *Гіпотеза дослідження.* Дослідження проблем еколого-економічного розвитку інтеграційних процесів в агропромисловому комплексі дозволить визначити стратегічні напрямки сталого розвитку навіть окремого регіону. *Виклад основного матеріалу.* Виявлення ряду факторів еколого-економічної взаємодії підприємств і галузей АПК на основі їх інтеграції в контексті підвищення конкурентоспроможності виробництва і продукції. *Оригінальність і практичне значення дослідження.* Наукова новизна дослідження полягає в розробці теоретичних і науково-методичних підходів до вирішення еколого-економічних проблем розвитку регіону. *Висновки та перспективи подальших досліджень.* Досягнення еколого-економічної рівноваги в умовах формування науково обґрунтованого інструментарію

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взаємодії підприємств і галузей АПК.

Ключові слова:

інтеграційні процеси, фактори, взаємодія, рівновагу, ефективність.

ЭКОЛОГО-ЭКОНОМИЧЕСКИЕ АСПЕКТЫ РАЗВИТИЯ ИНТЕГРАЦИОННЫХ ПРОЦЕССОВ В АГРОПРОМЫШЛЕННОМ КОМПЛЕКСЕ

Постановка проблемы. Несмотря на имеющийся значительный вклад в решение проблем развития процесса интеграции, в тоже время необходимо отметить, что проблемы эколого-экономического развития интеграционных процессов в агропромышленном комплексе комплексно не исследовались. *Цель статьи.* Исследовать отечественную и зарубежную теорию и практику формирования интеграционных взаимоотношений в сфере агропромышленного производства, выявить основные факторы эколого-экономического взаимодействия предприятий и отраслей АПК. *Объект исследования* – интеграционные процессы в агропромышленном комплексе. *Методы, используемые в исследованиях.* Теоретической основой для исследований послужили труды ученых по вопросам кооперативно-интеграционных отношений в АПК. В процессе исследований применялись следующие методы: абстрактно-логический, монографический, сравнительного анализа и др. *Гипотеза исследования.* Исследование проблем эколого-экономического развития интеграционных процессов в агропромышленном комплексе позволит определить стратегические направления устойчивого развития даже отдельного региона. *Изложение основного материала.* Выявление ряда факторов эколого-экономического взаимодействия предприятий и отраслей АПК на основе их интеграции в контексте повышения конкурентоспособности производства и продукции. *Оригинальность и практическое значение.* Научная новизна исследования заключается в разработке теоретических и научно-методических подходов к решению эколого-экономических проблем развития региона. *Выводы.* Достижение эколого-экономического равновесия в условиях формирования научно обоснованного инструментария взаимодействия предприятий и отраслей АПК.

Ключевые слова:

интеграционные процессы, факторы, взаимодействие, равновесие, эффективность.

Problem statement. The practical significance of the problems of ecological and economic development of integration processes in the agro-industrial complex, as well as the urgent relevance and the need to solve it, taking into account the formation of scientifically based tools for organizational and economic interaction of enterprises and industries of the agro-industrial complex, predetermined the relevance of research.

Analysis of the latest trends and publications. Various aspects of the agro-industrial integration development can be found in the works of Belarusian scientists. Thus, the state and prospects for the development of cooperative-integration relations in the Belarussian agro-industrial complex are comprehensively developed by V.G. Gusakov and M.I. Zapolsky; the main stages of the cooperative movement in Belarus were identified and substantiated by B.M. Shapiro; separate directions of creation and functioning of cooperative-integration structures in modern conditions were studied by N.A. Bychkov, I.P. Vorobiev, E.V. Gusakov, Z. M. Ilyina, N.V. Kireenko, A.S. Saiganov, A.V. Pilipuk, S.B. Shapiro, A.P. Shpak, L.F. Dogil and others.

The mechanisms and recommendations on integration issues proposed by domestic scientists are aimed at increasing the sustainability of the agro-industrial production development, improving its structure, increasing both the products competitiveness when supplying them to foreign markets, and the efficiency of interaction between business entities within the framework of grocery companies.

Purpose of the article. To study domestic and foreign theory and practice of the formation of integration relationships in the field of agro-industrial production, to identify the main factors of ecological and economic interaction of enterprises and industries of the agro-industrial complex.

Presentation of the main research material. The studies showed that currently in the domestic agro-industrial complex there are many types and forms of agro-industrial integration. However, according to Academician V.G. Gusakov, in the conditions of the formation of a market economy, the most appropriate for the agrarian sector of the republic may be:

– vertical integrated associations which are created by enterprises and organizations according to the technological principle from the receipt of agricultural raw materials to the sale



of finished quality food, including product processing, technical service, financial support and other economic links. They can function as agro-industrial corporations, firms, factories, holdings, economic and financial-industrial groups;

– horizontal integrated associations, the emergence and development of which is possible in the context of the transition from a diversified structure of agricultural organizations to a specialized one on the basis of economic cooperation between organizations and enterprises of various organizational and legal forms of ownership in order to organize the production of certain types of products on a modern technical basis using advanced methods and the latest technologies;

– inter-farm integration, the development of which is advisable during the period of successful development of the agricultural sector in order to combine some of the resources and funds in order to solve specific problems, such as the production of certain types of agricultural products and their processing, the main production maintenance, etc. [4, 5, 14].

Our studies have made it possible to determine that the main condition for increasing the products and production competitiveness is to improve the organizational and economic interaction of enterprises and industries of the agro-industrial complex.

This process provides a link between the growth of production efficiency of the final high-quality products (agricultural raw materials and food products) and the profitability of its sales. It was found that the predominance of state ownership at enterprises of a single food chain (engaged in the production and processing

of agricultural raw materials, as well as the sale of finished products) does not correspond to the market conditions of economic management, requiring the denationalization of property, an increase in the share of its individual and group forms, and a reduction in the participation of government structures in integration processes.

Improving the efficiency of interaction between the participants of integrated structures in the context of market transformations will be facilitated by the improvement of property relations, specifically the development of the transformation process of the latter, the development of an algorithm for creating product companies, the establishment of a procedure for delegating property rights to management structures (integrators), the distribution of the received financial income participants, etc.

The conducted research made it possible to study the diversity of viewpoints on the process of development of agro-industrial integration found in scientific literary sources. The positive and negative factors identified in this case are given by us in Table 1.

The research of different opinions of the authors, such as M. I. Zapolsky, M. K. Zhudro, E. G. Karpova, O. V. Kirsanova allows us to conclude that there is still an insufficient level of competitiveness in integrated formations. Studies show that the most significant factors that negatively affect the state and development of integration in the agro-industrial complex are weak competition in regional agro-industrial markets, insufficient level of technical equipment of enterprises, shortages in the organization of marketing services, lack of practical skills of management personnel, etc.

Table 1 – Assessment of different viewpoints on the agro-industrial integration development

Author, Source	Positive Results	Negative Results
1	2	3
M. K. Zhudro	<ul style="list-style-type: none"> – development of a general economic strategy and policy; – mutual responsibility and trust; – sales, pricing and marketing policy; – associations of legally independent business entities, capital consolidation; – improving the stability of resources concentration functioning; – the possibility of diversifying production; – general tax planning; – joint research and development work 	<ul style="list-style-type: none"> – the emergence of obstacles to free market entry; – monopoly position in the market or in its individual segments; – problems with determining the capital share of a particular participant in the corporate structure; – excessive diversification leading to increased costs and decreased competitiveness; – decreased budget receipts





Continuation Table 1

1	2	3
M. I. Zapolsky	<ul style="list-style-type: none"> – payments reduction due to the payment of a single tax at the final stage of the finished products sale; – more reasonable profits distribution among the participants in the formation; – transaction costs saving associated with the conclusion of transactions for the products sales and the economic functions performance; – rational working capital redistribution between participants, reduction in the borrowed funds attraction, and on this basis reduction in interest payments for using a loan; – the possibility of forming a centralized reserve fund through the accumulation of monetary and other assets of participants, as well as by attracting external financial and material resources 	<ul style="list-style-type: none"> – not all integrated agro-industrial formations automatically become the effective participants in market relations and take full advantage of integration, therefore, there is a need for an objective analysis of the effectiveness of institutional transformations in agro-industrial formations at the regional level
E. G. Karpova	<ul style="list-style-type: none"> – reduction of transaction costs; – increase in the investment attractiveness of enterprises; – reducing financial risk; – the use of advanced technologies; – synergistic effect achieved through production scale-up 	<ul style="list-style-type: none"> – reduction in the role and importance of cooperative-integration formations to improve the efficiency of the industry
O. V. Kirsanova	<ul style="list-style-type: none"> – when creating an integrated structure, favorable conditions are created for attracting investments and credit resources; – reduction of financial risks for individual enterprises included in the integrated formation; – the use of advanced technologies, the development of innovations in agricultural production 	<ul style="list-style-type: none"> – property, land and legal rights infringement of regional producers
E. A. Bogdanova	<ul style="list-style-type: none"> – contributes to the strengthening of production ties between enterprises of the agro-industrial complex; – contributes to increasing the competitiveness of agricultural producers 	<ul style="list-style-type: none"> – lack of flexibility and reduced ability to adapt to changing market conditions; – inconsistency of goals and economic interests between enterprises that make up a single technological chain; – low level of innovation activity of enterprises; – lack of qualified specialists
E. I. Sevastyanova	<ul style="list-style-type: none"> – the ability to efficiently and quickly grow and diversify the business; – production costs reduction due to its large size advantage; – concentration of technical, technological and managerial experience 	<ul style="list-style-type: none"> – lack of adequate legal regulation; – artificial maintenance of unprofitable industries

Source: developed by the author based on [2, 6, 7, 8, 9, 10, 13]

A number of authors have paid considerable attention to the study of factors that promote or hinder the development of integration processes in the agro-industrial complex. For example, the investment attractiveness of the industry as a whole and its individual segments, as well as the attractiveness of economic entities in this segment of the economy; competitiveness of products in the domestic and world markets; the adequacy and effectiveness of the built interregional and intercountry relations; the specifics of the development of agriculture (as an industry producing primary raw materials) and the agro-industrial complex as a whole; the level of technological development of the complex; integration and export potential of the economy of a territory (region or country) [3].

Scientific and technological progress, along with an increase in the population standard of living, has led to environmental problems. The assessment of sustainable development of the agro-industrial complex, taking into account the balance of the environmental, social and economic components, is worth paying attention to.

The ecological-economic system, which is a complex and contradictory set of elements, connections and relationships, is in dynamic interaction, alternately taking on an equilibrium and non-equilibrium state.

According to R.M. Nurtdinov and A.R. Nurtdinov, the balance represents a certain optimum between the economic potential and the qualitative parameters of the life of society, the compliance of environmental management methods with rational criteria for the development and restoration of the environment with sufficient provision of production with natural resources. In this context, the ecological-economic system is influenced by various factors of the external and internal environment, therefore, the equilibrium state is relative, temporary, and transient. The main factor disturbing the balance is human intervention in the natural environment and their production activities. This influence is opposed by the tendency to return the ecological-economic system to a state of equilibrium under new, changed conditions. These are the factors that ensure

the optimal mode of human activity from the ecological environment standpoint. The state of equilibrium seems to be ideal and therefore difficult to achieve, thus a non-equilibrium position is far more frequent. As a result of the quantitative accumulation of negative environmental and economic changes, the system transitions to a qualitatively new state defined as non-equilibrium.

The systematization of existing approaches [1, 11, 12] and the assessment of the effectiveness of ecological and economic interaction through the prism of an equilibrium and non-equilibrium position made it possible to identify and group the integration interaction factors within the framework of ecological and socio-economic characteristics (Picture 1). Thus, to the factors of ecological and economic equilibrium we have referred the following: rational combination between anthropogenic and natural landscape; reduction of landfill areas for waste storage; reduction of carbon dioxide emissions. And, on the contrary, a high level of anthropogenic gases emissions into the environment; an increase in the waste toxicity with a decrease in its volume due to the deepening of processing determines the ecological and economic imbalance.

It should be noted that among the components of the natural and anthropogenic landscape, biological equilibrium is most strongly susceptible to change. Natural and anthropogenic landscapes are quite stable and can exist for a long time in a slightly altered state, provided they are correctly created and used. Therefore, in order to maintain optimal environmental management, rational activity and control over its state by humans are necessary.

Along with the socio-economic sustainable development problem (e.g., meeting basic needs, ensuring a sustainable level of population, preserving and strengthening the resource base, reorienting technologies, etc.) there is also a socio-moral problem that is a more justified distribution of income (profits).



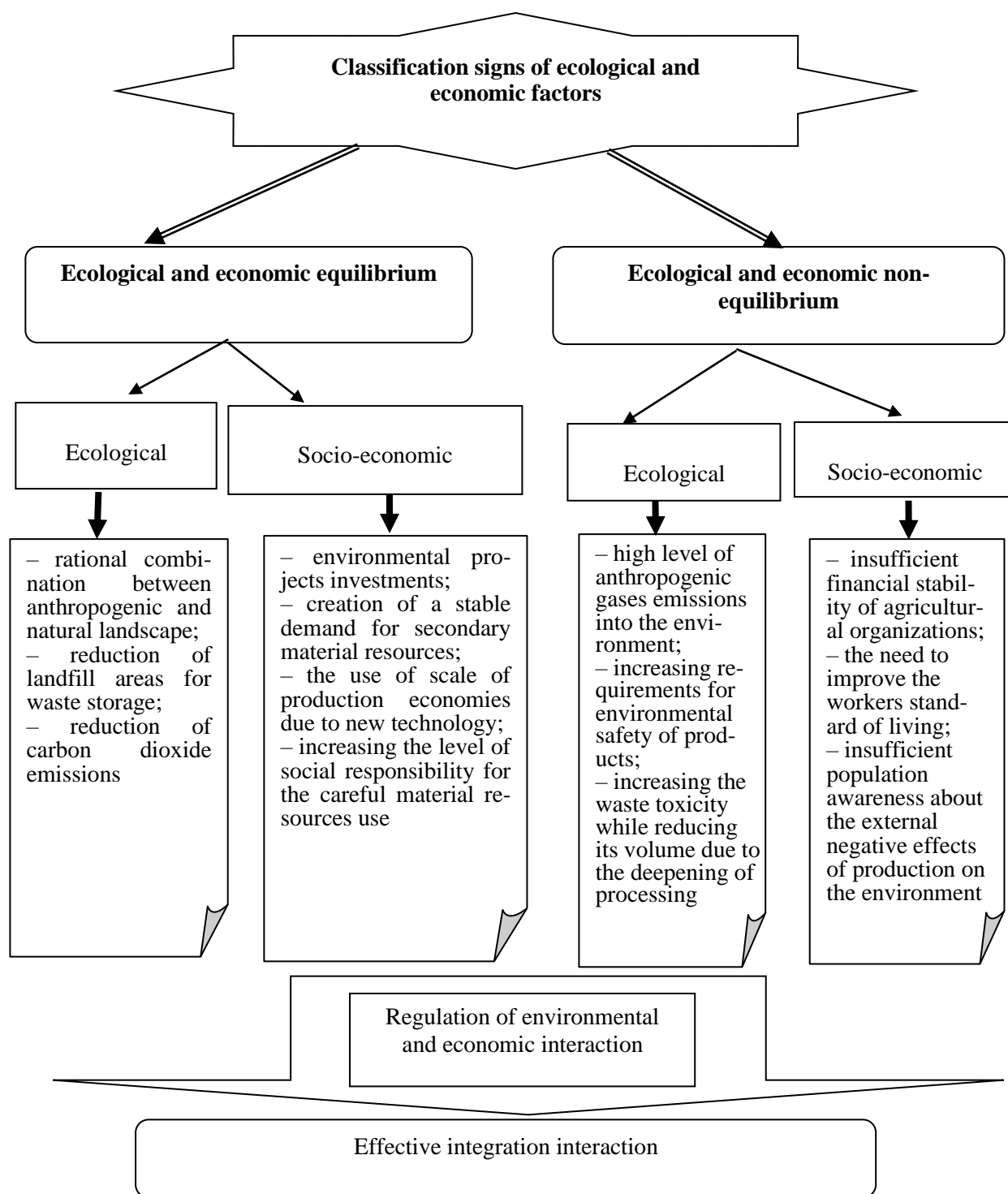


Figure 1 – Classification of factors that determine the effective integration interaction emergence
Source: developed by the author

In this regard, insufficient population awareness about the external negative effects of production on the environment is one of the factors of ecological and economic non-equilibrium.

In this context, it is of interest to assess the sustainable development of the agro-industrial complex, taking into account the multiplicative effects of inter-territorial (regional and country) and inter-sectoral interaction based on TOPSIS,

i.e., Technique for Order of Preference by Similarity to Ideal Solution (modified method of ordered preference through similarity to an ideal solution), the advantage of which is the ability to solve the problem of decision-making with an infinite number of alternatives. Two criteria ("shortest distance to positive ideal solution" and "longest distance to negative ideal solution") are



replaced by criteria "as close to PIS" and "as far as possible from NIS.

Thus, the integration processes in the agrarian sector of the economy of the territory (regions and countries) receive real economic benefits from integrative cooperation by achieving the goals of integration, finding mutually beneficial ways of cooperation and development strategies through interaction in sectors and sub-sectors of the agro-industrial complex. In this regard, the formation of scientifically based approaches to solving the ecological and economic problems of the region's development is required.

Conclusions and prospects for further research.

1. The positive and negative results of the agro-industrial integration development were assessed when studying various points of view among scientists, the essence of which is to take into account the most significant factors that negatively affect the state and development of integration relations in the agro-industrial complex, such as insufficient competition in regional agro-industrial markets, low level technical equipment of enterprises, organization of marketing services that does not meet the requirements of the market, lack of practical skills of management personnel, etc.

2. The existing approaches were systematized and an assessment of the effectiveness of ecological and economic interaction through the prism of an equilibrium and non-equilibrium position was made.

3. A group of integration interaction factors has been identified based on the main characteristics – environmental and socio-economic.

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