



**Analysis of factors and  
conditions forming the  
spatial-innovation-agri-  
entrepreneurial ecosystem  
of the depressed Republics  
of the North Caucasus**



## ANALYSIS OF FACTORS AND CONDITIONS FORMING THE SPATIAL-INNOVATION-AGRI-ENTREPRENEURIAL ECOSYSTEM OF THE DEPRESSED REPUBLICS OF THE NORTH CAUCASUS

### ANÁLISIS DE LOS FACTORES Y CONDICIONES QUE FORMAN EL ECOSISTEMA DE INNOVACIÓN ESPACIAL-AGRO-EMPRESARIAL DE LAS REPÚBLICAS DEPRIMIDAS DEL NORTE DEL CÁUCASO.

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#### Abstract

It is well known that historically, agriculture has always been conservative and almost always forced to confront the diverse "challenges" of natural, weather, climate, social and other factors alone. Moreover, the agrarian sector never possessed sufficient financial resources, did not have adequate mechanisms, was provided with material resources according to the final principle, etc., which all ages put the strategically important sector of the national economy under consideration in unusual development conditions.

At the same time. the rich experience of advanced agrarian developed countries suggests that agriculture initially has the properties in order to become one of the rather efficient sectors of the national economy. True, it should be noted - with proper state support and state regulation of agriculture in accordance with the laws of a market economy. This approach allows not only to eliminate the negative impact of natural, climatic, social and other factors and conditions, but also to expand economic and economic opportunities. The Russian realities of the development of agricultural enterprises are no longer able to satisfy the demands of theory and practice.

**Keywords:** ecosystem, entrepreneurship, globalization, sanctions, global economic crisis, factors and conditions, balanced development.

Es bien sabido que históricamente, la agricultura siempre ha sido conservadora y casi siempre se ha visto obligada a enfrentar los diversos "desafíos" de factores naturales, climáticos, climáticos, sociales y de otro tipo. Además, el sector agrario nunca tuvo suficientes recursos financieros, no tuvo mecanismos adecuados, se le proporcionaron recursos materiales de acuerdo con el principio final, etc., que todas las edades pusieron en consideración al sector estratégicamente importante de la economía nacional en condiciones de desarrollo inusuales. Al mismo tiempo, la rica experiencia de los países desarrollados agrarios avanzados sugiere que la agricultura inicialmente tiene las propiedades para convertirse en uno de los sectores más eficientes de la economía nacional. Es cierto que debe tenerse en cuenta, con el apoyo estatal adecuado y la regulación estatal de la agricultura de acuerdo con las leyes de una economía de mercado. Este enfoque permite no solo eliminar el impacto negativo de los factores y condiciones naturales, climáticos, sociales y de otro tipo, sino también expandir las oportunidades económicas y económicas. Las realidades rusas del desarrollo de las empresas agrícolas ya no pueden satisfacer las demandas de la teoría y la práctica.

**Palabras clave:** ecosistema, emprendimiento, globalización, sanciones, crisis económica global, factores y condiciones, desarrollo equilibrado.



## **Introduction.**

The centuries-old experience of world management convincingly speaks of the need for a highly developed and efficient agricultural sector to any advanced state. And this is natural, because no state can be considered developed if it has backward agriculture.

From the analytical materials of the western EU countries it is clear that the agricultural sector is very stable and even progressing, although at the same time its share in the national GDP is small and even gradually decreases. So, for example, in the gross product of England and Germany (the most advanced European countries), this indicator is not more than 1%, in France and Italy it barely reaches 2%. The largest agrarian developed EU country is the Netherlands, but here the share of the agricultural sector in GDP is not more than 2%. This small country is able to feed 25 million people; up to 70% of agricultural products are exported to other countries, including Russia. And in the United States this indicator is even less - only 0.9% falls on the share of agriculture, although no one can but admit that this country has a highly productive and efficient agricultural industry - one agricultural man is able to feed 150 people.

The geopolitical events of recent decades, globalization and global economic crises have piled up a lot of certain problems on world agriculture, which, however, began to form a new model of agricultural development in it.

Among the most significant reasons that have had and are having a strong impact on the construction of a new model of agricultural development include the lack of new (free) areas that allow expanding agricultural production, the exhaustion of traditional natural factors and conditions that positively influenced the formation of the agricultural process, and the achieved productivity and yield at worsening environmental conditions, increasing energy costs of the biosphere (biogenic energy of the landscape (biocenoses) per unit TSU of manufactured products, etc. It must be pointed out that over the course of many decades many attempts have been made to combine the above constructions into something integral, unified, but this has always ended in uncertain development models with falling resources.

We are aware that the Russian Federation does not yet have many of the problems that agriculture in industrially developed countries is dealing with (in particular, we still have a lot of virgin lands, there are serious reserves to increase irrigated areas, to use mineral fertilizers, etc.)

All this allows us to talk about some reserves. But, in our opinion, these are not reserves, but omissions and losses, and today it is necessary to quickly determine the path of sustainable development of the agro-industrial complex of the Russian Federation.

All these features indicate the urgent need for the development of modern agriculture, as well as oblige to balance the entire set of research tools - these are methods of analysis, assessment and diagnosis, forecasting, modeling, etc.



Ubiquitous total industrialization, taking place with the seizure of highly cultivated territories and agricultural land, potentially pushes agriculture into the framework of a model with limited resources. In today's realities, we can talk about the need to draw a peculiar feature to the centuries-old (historically established) method of agricultural production, which for a long time consisted of the presence of "unlimited" resources, because we entered the phase of agricultural production in the conditions of severely limited (at best, limited) resources.

The complexity and multidimensional nature of the socio-environmental and economic problems of the development of agribusiness in the depressed agrarian-oriented republics of the North Caucasus compel us to reconsider the inconsistent processes of the rural community and justify new approaches, mechanisms and directions for their restoration and withdrawal to the sustainable development path taking into account the environmental component. [8,16].

We have to admit that most of the farmers, especially the mountainous territories of the republics of the North Caucasus, did not fit into the rules of a market economy and began to catastrophically degrade, losing their social and economic destiny in the field of agricultural production.

Of course, this can provoke unpredictable, non-regular consequences both in the socio-economic and political spheres.

Agribusinesses should become the main element of the agro-socio-agricultural sphere and worthily occupy their niche.

It should be noted that when we "entered" this topic, we established that agribusinesses in today's realities are going through perhaps the most difficult times of their development.

Almost all aspects of the formation of the agri-entrepreneurial ecosystem are still beyond the boundaries of socio-ecological-economic research. So, in particular, the problems of the imperfection of the organizational and methodological support of the procedures for the analysis and diagnostics of agricultural business taking into account the environmental component, the study of the organizational, environmental and economic components of the ecosystem development mechanism are very relevant.

All of the above requires adjustment and the selection of new accents when modeling the processes and technologies occurring in the industry under study, focused on the implementation of new functions while maintaining the same values.

### **Research methodology**

The theoretical and methodological basis of the study was the work of Russian and foreign scientists, fundamental concepts on the problems of the development of the agricultural sector, rural territories, taking into account the environmental component.

Among the quantitative methods used depending on the tasks to be solved, one can point out system analysis, mathematical statistics, economic and mathematical modeling, analytical groups, and others.

The empirical basis of the study was determined by the subject, object, purpose and objectives of the study. The empirical basis for testing our hypotheses and propositions was



provided by the data of the Federal State Statistics Service of the Russian Federation and its territorial branches for the North Caucasus, data from the Ministry of Agriculture and the Ministry of Economic Development of the Russian Federation, as well as statistics from the depressed republics of southern Russia.

### **Research Results**

In recent years, many works have appeared on the problems of the formation and development of agroecosystems. One of the "pioneers" of business systems in the economy, James Moore, focused his research on the definition, characteristics and structure of business ecosystems, noting the latter as "dynamic and collaboratively developing communities of diverse entities that create and receive new content in the process of interaction, and competition." [11]

James Moore explained that in biology, the concept of ecosystem means "a community of organisms interacting with each other, combined with the environment in which these organisms live, and with which they also interact." [12]

In another work, he substantiated that in business, the ecosystem is "... an economic community based on the foundation of interacting organizations and individuals, the organisms of the world of entrepreneurship ..." [6]

It should be noted that long before J. Moore's method of analogy was used by many scientists, and, in particular, there were many similar borrowings from biology. So, in the 1930s, Arthur Tensley introduced the concept of "ecosystem" into scientific circulation, meaning any combination of living organisms and their environment. [15]

It is noteworthy that one of the classics of the economic school A. Marshall proposed combining economics and biology, while calling economic biology Mecca of an economist. [4].

Later, K. Mason and R. Brown deepened their understanding of the entrepreneurial ecosystem, defining it as a set of interconnected entrepreneurial actors (both possible and existing), business structures, universities and communities. [3].

A generalization of these and other provisions allowed D. Eisenberg to develop a number of recommendations for the formation of an effective entrepreneurial ecosystem, including such as:

1. The need for integrated development of all elements of the entrepreneurial ecosystem, including politics; financial industry; culture; infrastructure (aimed at supporting business structures); human capital; markets.
2. Prevent the simultaneous change of all elements of the ecosystem (it is necessary to change one at a time, in stages).
3. A study of international best practices with the obligatory introduction of innovations.
4. Formation of independent entrepreneurial groups with special skills and motivated for targeted impact on interested structures.
5. Formation of an entrepreneurial ecosystem at the local level.



## 6. Promotion of successful entrepreneurial experience among start-up entrepreneurs. [6].

In recent years, the concept of “ecosystem” is an inevitable attribute of innovation management; moreover, its concept has become one of the components of the new theoretical and methodological principles of innovation.

Indeed, even a little experience in applying the advantages of the entrepreneurial system in the Russian Federation convincingly speaks of its positive impact on all kinds of entrepreneurial startups, creating the latter equal conditions for business structures, while guaranteeing the protection of their rights and entrepreneurial freedom.

Undoubtedly, in addition to favorable declarations on free rights to carry out entrepreneurial activity, it is necessary to create an appropriate regulatory and legal base, form appropriate educational systems, ensure equal access to capital and sources of financing, and promote the importance of the entrepreneurial ecosystem.

Naturally, state structures, universities, schools, business structures, banks and various foundations and communities should be actively involved in these processes.

There is already work to evaluate the entrepreneurial ecosystem in the regions. [1,5,7]

Under current conditions of development, agri-entrepreneurial ecosystems cannot be considered solely from the standpoint of a separate, even separate approach, because the processes and phenomena occurring in them are very complex and in their nature and nature, in general, which requires the use of a set of interdisciplinary knowledge to study them.

The agro-entrepreneurial ecosystems under consideration, despite the fact that they are systemic formations of complex nature with a mixed genesis, nevertheless, they are continuously present in the field of influence of the mass of multidirectional factors and conditions of the external and internal order. [1,9,14]

Among the many groups of factors of multidirectional impact on the development of the agro-entrepreneurial ecosystem, we can distinguish:

- Institutional
- Social
- Economic
- environmental
- innovative games;
- investment and other factors.

It is advisable to structure the whole set of factors and conditions for the formation of an entrepreneurial ecosystem in the sense of mobilizing them (as structural components of its potential) into the following four groups, which make up the totality of natural, economic, natural-systemic, and social factors. [2,13,17]

The emerging agro-entrepreneurial ecosystems in the depressed republics of the North Caucasus, and, under continuous pressure from increasing competition, are forced to constantly seek a balance between homeostasis and adaptation. Given the forced



maintenance of homeostaticity (constancy) of the ecosystem, which, in principle, does not perceive any innovations, agri-entrepreneurial activity in this area is “stalled” in its development and this is associated with socio-economic gradients, especially in mountainous areas.

In the course of surveys of a number of managers of such agribusiness (taking into account the environmental component) of the republics of the North Caucasus, we came to the conclusion that these business entities are extremely unprepared for adaptation, for “embedding” in the post-industrial economy, for reformatting their morphological features and characteristics .

In the analyzed republics, agribusiness with an environmental component has not yet been able to become distinctive and gain territorial recognition, form some kind of tradition.

In the course of our survey, many leaders of various agro-formations of the Kabardino-Balkarian Republic and the Republic of Adygea (87% of respondents) pointed to a number of factors restraining the development of the regional ecosystem, including the lack of a developed financial sector, the instability of tax legislation, the lack of integration of the business community with universities, the incompleteness of land reform, etc.

Due to these and other reasons, the agri-entrepreneurial ecosystem, no doubt, cannot be considered as a modern network form of economic interaction. [4,10,15]

In the course of the study, we also revealed such a feature - developing ecosystems already go beyond the boundaries of the existing administrative contours, moreover, in some cases, for example, between the Republic of Adygea and the Krasnodar Territory, they generally lose their connection to a specific territory. At the same time, the formation of local systems is formed according to the sectoral, product-technological principle with “migration” to other adjacent regions in search of more suitable conditions for conducting agribusiness, etc.

In [1], when analyzing the basic laws of the development of the agri-entrepreneurial ecosystem, it is recommended to use a special methodology of systems with the allocation of the surrounding and internal environment. For the internal environment of any ecosystem, the similarity of agro-industrial, social, infrastructural, climatic and other conditions for conducting agribusiness in agriculture (the so-called homogeneity) is inherent, although, with a rather heterogeneous (heterogeneous) in comparison with other ecosystems.

We share the approach in which it is proposed to use the concept of “ecosystem” with regard to households, while it is also recommended that the household itself be considered only as an innovative social ecosystem. [5,15].

A generalization of the conclusions on this issue presented in the special literature allows us to consider the innovative agro-entrepreneurial ecosystem as a multilayer multimodal and multilateral system that embraces, complements and strengthens related innovative institutions and scientific clusters based on the use of human and intellectual capital formed under the influence of social and financial capital.



In other words, the spatial-innovation-entrepreneurial ecosystem is a complex open dynamic system, within the framework of which a special institutional environment of adaptive type is being built, which allows to activate the processes of expanded reproduction and innovation, technology and human capital.

This spatial approach also makes it possible to distinguish endogenous and exogenous factors that form the vector of behavior of business entities operating within the framework of the spatial-innovation-agri-entrepreneurial ecosystem (involving direct state support and management of innovative processes at the macro- and mesoscale); providing various preferences in the early stages of the formation of agribusiness; insurance of possible financial threats and risks; formation of the legal field of startups, etc.

### **Conclusions and suggestions**

The approach of the spatial-innovation-agri-entrepreneurial ecosystem is one of the modern theoretical and methodological foundations of socio-ecological and economic research in various fields, including in agribusiness.

Such an interdisciplinary approach allows us to determine the effectiveness of using a variety of methodological approaches to the research of the agri-entrepreneurial ecosystem, including such as evolutionary, institutional, contextual, socio-ethnocultural and other aspects.

The categorical essential-content characteristic of the processes of development of the local agro-entrepreneurial ecosystem from the perspective of a systematic approach allowed us to clarify the subject and object of this study as a balanced system of interactions in one or several constituent entities of the Russian Federation, taking into account the socio-ecological, agro-economic and institutional aspects of achieving the goals in a competitively efficient - parity development of inter-farm relations, detail the forms and mechanisms for implementing the approach of spaces NGO-innovative-agropredprinimatelskoy ecosystem diagnosing social, ecological and economic situation agrarian oriented depressive states.

Analysis and diagnostics of the management effectiveness of the prospective development of the spatial-innovation-agri-entrepreneurial ecosystem allows us to state that the main indicators of the environmental and economic components of the management efficiency of such economic systems confirm the presence of a general tendency towards a decrease in efficiency and a decrease in the standard of living of the population, especially in mountainous regions, which, in general, negatively affects the quality of life of the population.

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## References

- V.V. Aleschenko Entrepreneurial networks in the agro-industrial complex: fundamentals of formation // Economics and management of innovative processes, projects and programs: Materials of MIPK. - Omsk. - 2015. - S. 34-58
- S.V. Doroshenko, A.G. Shelomtseva Entrepreneurial ecosystem in modern socioeconomic research // Economic theory. - 2017. - No. 4. - pp. 212-219
- L. Kopeikina, Ecosystem for innovative business // The Angel investor. - 2008. - January. - pp. 10-13
- A. Marshall, Principles of Political Economy. - M.: progress, 1993. - V.1. - 415 p.
- Yu.V. Rozhkov Household as an innovative social ecosystem // Vestnik KhGAEP. - 2015. - No. 3 (77). - pp. 141-145
- R. Brown, C. Mason. Increasing "The vital 6 percent": Designing effective public policy to support high growth // Local Economy. - 2012. - vol. 27. - N1. - pp. 33-39
- E.T. Mekhdiev, V.V. Prokhorova, S.V. Makar, G.G. Salikhov, A.V. Bondarenko. Smart cities in future energy system architecture International Journal of Energy Economics and Policy. 2018. Vol. 8. No. 5. pp. 259-266.
- V.S. Misakov, V.A. Khamzatov, A. Kh. Temroкова, A.V. Misakov, I.A. Dikareva [Strategic management of innovative agro-industrial projects](#) // [Amazonia Investiga](#). 2018. Vol. 7. No. 14. PP.16-23.  
<https://elibrary.ru/contents.asp?id=34207768>  
<https://elibrary.ru/contents.asp?id=35461233>  
<https://elibrary.ru/contents.asp?id=34207768>
- V.S. Misakov, L.A. Tsurova, L.A. Yandarbieva, I.Kh. Thamadokova, M.G. Goigova Certification of regional economic complex as a highly effective tool for analysis and diagnostics of its development // [Amazonia Investiga](#). 2019. Vol. 8. No. 20. PP. 451-458  
<https://elibrary.ru/contents.asp?id=35461233>  
<https://elibrary.ru/contents.asp?id=34207768>
- A.S. Molchan, O.Yu. Frantsisko, K.O. Ternavshchenko, V.V. Illarionova, V.V. Prokhorova Organizational structure of agro-industrial complex: formation and interaction of subjects. International Journal of Applied Business and Economic Research. 2017. Vol.15 № 23. pp. 281-296.
- J.E. Moore "The Death of Competition: Leadership & Strategy in the Age of Business Ecosystems. - New York: Harper Business. 1996.
- J.E. Moore Predators and Prey: A New Ecology of Competition // Harvard Business Review. 1993. May-June. PP. 75-86



- V.V. Prokhorova, V.E. Chernikova, T.U. Anopchenko, L.V. Goloshchapova, N.N. Kulikova Formation and development of industrial clusters in the socioeconomic regional system. *Espacios*. 2018. Vol.39 № 31.
- V.V. Prokhorova, A.S. Molchan, E.N. Zakharova, A.V. Gladilin Agro-town development as a technology of life support and socio-economic policy of the country. *International Review of Management and Marketing*. 2016. Vol. 6. No. 6. pp. 191-196.
- A.G. Tansley The use and abuse of vegetational terms and concepts // *Ecology*. 1935. Vol. 16 (3). PP. 284-307
- O.B. Ugurchiev, S.A.Ah. Dovtaev, V.S. Misakov, A.V. Misakov, Z.I. Temmoeva, A.V. Gyatov Transition mechanism development to the sustainable balanced development of depressive territories // *The Turkish Online Journal of Design Art and Communication*. 2018. T 8 No. S-MRCHSPCL. PP. 248-253
- E.N. Zakharova, V.V. Prokhorova, F.V. Shutilov, E.N. Klochko Modern tendencies of cluster development of regional economic systems. *Mediterranean Journal of Social Sciences*. 2015. Vol. 6. No. 5 S3. pp. 154-163.