http://dx.doi.org/10.18778/1429-3730.53.06

Prof. Yurii Lopatynskyi*
Viktor Meglei, PhD**

ECOLOGICAL AND ECONOMIC DEVELOPMENT OF AGRICULTURE IN UKRAINE

EKOLOGICZNY I EKONOMICZNY ROZWÓJ ROLNICTWA NA UKRAINIE

Streszczenie

W artykule przeanalizowano warunki bezpieczeństwa ekologicznego i wzrostu gospodarczego sektora agrarnego na Ukrainie. Uwzględniono także czynniki wpływające na jego obecny stan. Autorzy dokonali oceny wpływu regulacji państwowych na rozwój krajowego sektora rolnego. W badaniu wzięto pod uwagę różne sposoby realizacji strategicznych zadań, obejmujące zastosowanie dźwigni organizacyjnych i ekonomicznych jako mechanizmów rozwoju podsektorów gospodarki rolnej. Podkreślono wagę takich rozwiązań jak: wprowadzenie nowoczesnych integracyjnych stowarzyszeń agrarnych typu logistycznego, poprawa warunków sprzedaży produktów rolnych, rozbudowa sieci sprzedaży w oparciu o ulepszoną infrastrukturę rynku rolnego. Ogromne znaczenie dla rozwoju rolnictwa na terenie Ukrainy mogą mieć: wsparcie innowacyjnych technologii w procesie produkcji, uwzględnienie czynników ekologicznych i ekonomicznych w kontekście zwiększonego wykorzystania zasobów odnawialnych czy ponowne wykorzystanie odpadów z produkcji rolnej.

Słowa kluczowe: rozwój ekologiczny i gospodarczy, sektor rolny, motywacja ekologiczna

Numer klasyfikacji JEL: Q10, Q57, O44

* Yuriy Fedkovych Chernivtsi National University, Faculty of Economics, Department of Business Economics and Human Resource Management; y.lopatynskyi@chnu.edu.ua

** Yuriy Fedkovych Chernivtsi National University, Faculty of Economics, Department of Business Economics and Human Resource Management; viktormeglei@gmail.com

Introduction

The strategy for the development of agrarian sector in the realities of present-day dynamically changing market lies in the formation of conditions wherein its (sector) integrally combined social, economic, and environmental components are reproduced as interdependent and complementary. This, in its turn, is supposed to result in realization of such priorities as provision of the country's population with food and respective sectors – with agricultural raw materials; modernization of principles and methods of state regulation; stronger commercialization of agricultural activity and its delivery, both economic and individual; occurrence of favorable conditions for introduction of Ukrainian agricultural products in the world, in particular, in the European food market; consolidation of mixed sectoral development in view of (time-dependent or that depending on market events) formation of different-type village-forming farms; social responsibility of the state, market actors, civil society and rural communities for environmental safety in agriculture; formation of new agro-ecological culture based on principles of ecological awareness/self-awareness.

With that, the present-day agrarian activity in Ukraine urgently requires introduction of ecological-economic dominants and practical implementation of the aforesaid theses, in particular, in the context of strategy of sustainable development of Ukraine that presupposes the basic vector of sustainable development to be combined with vectors of security, responsibility and social justice, all these aiming to strengthen positions of Ukraine in Europe and in the world.

Ecological-economic orientation of studies stays now and will stay open in the perspective. All transformations in the agrarian sector should be systemically substantiated as a response to numerous challenges of the market, various changes in socio-economic, political and cultural life of Ukraine, and unacceptable present-day environmental conditions.

The present work aimed at deepening of theoretic-methodological bases, scientific and methodical provisions, and elaboration of practical recommendations for ecological safety in and economic growth of the agrarian sector.

1. Materials and methods of research

Development of agrarian sector on ecological-economic principles was at various times emphasized in the works by Michael C. Appleby (2005), Joanna Barłowska (2017), Olena Borodina (2016), Magdalena Ciepielewska (2014), Maria Golinowska (2013), Olga Khodakivska (2015), Monika Paszke (2017), Don G. Peden (1998), Igor Prokopa (2010), Olga Popova (2009), Joanna Radziewicz (2016), Dariusz Żmija (2014), etc.

Methodologically, the present study bases on systems approach presupposing application of methods of scientific knowledge that represent both empirical and theoretical levels of author's research. The applied methods include those of *statistical analysis* (to characterize the effect of certain natural and climatic factors on the development of the agriculture in Ukraine; application of respective resources in the system of agricultural production; comparative quantitative analysis of production of agricultural goods; disclosure of dependences between sectoral agricultural production and consumer demands); *algorithm presentation* of systems description (to develop block-scheme of agrarian development by key economic, social, and environmental criteria); *forecasting* of the perspectives for system's development (with respect to development of the system of agrarian activity on the basis of modern environmental motivations).

2. Theoretical-methodological substantiation of agrarian sector's ecological-economic development

The paradigm of economic development in economic theory correlates with conceptual substantiation of the category of "development", conceptual consideration of the system within this category, its content parameters, philosophic substantiation, as well as with social and environmental orientation. It seems reasonable to divide economic understanding of the essence of the category of "development" to individual components of elemental, phenomenal, objective, transformational, incentive, managerial and other methodological origins.

The category of "development" is understood by the author as a totality of procedural changes and transformations at the level of individual economic or complex systems (socio-economic, ecological-economic, economic-technical, etc.) and respective system's support, management, transformations, reproduction, and renewal.

An integral agrarian system is selected as a development model with consideration of its structural and functional specificities (see Fig. 1).

According to author's vision, the agrarian system is a complex formation at the junction of agriculture and agrarian relations possessing certain material integrity (partially conventional due to components of nature and climate), and spatial limits (system's boundaries may in some cases be virtual). The agrarian system is systematically considered in terms of structuredness, functionality and management of reproduction processes of both separate elements of the system, and its wholeness. At the level of individual subjects, the agrarian system is practically realized through technical, technological, organizational, communication and other components. From the point of view of management, the agrarian system requires administration (in particular, in case of realization of

natural components) with simultaneous germs of self-administration in order to achieve the goals of development and target economic, environmental and social objectives.

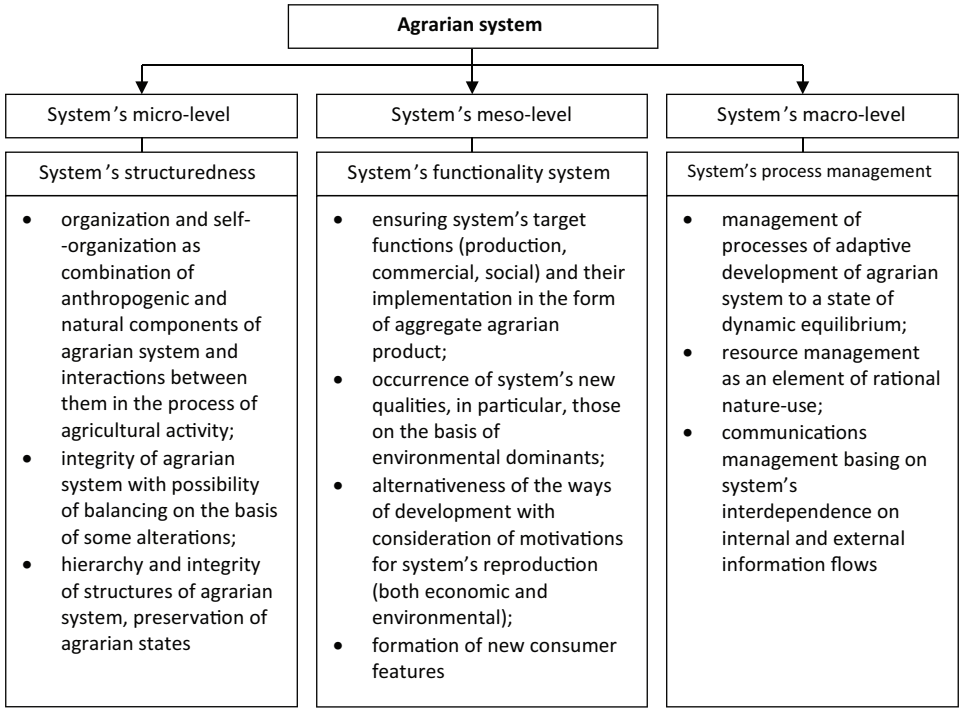

Figure 1. Methodological structure of the agrarian system

Source: own study on the basis of methodological generalizations.

The concept of the agrarian system as a model of ecological-economic reproduction of the agrarian sector and methodological model of its structural and functional parameters includes: (1) major structural elements of the agrarian system (according to different conceptual and categorical interpretations) – bio-geosphere, phyto-geo-sphere, agro-sphere, ecosystem, agro-ecosystem, bio-cenosis, agro-landscapes etc; (2) major functional processes representing the dynamics and transformations of the agrarian system, and determine its productive characteristics – economic, technical, ecological, etc; (3) target indicators of ensuring and typifying of the development of the agrarian sector from comparative positions.

In agricultural practice, the agrarian system is a complex formation of the first order covering macro-, meso- and micro-levels of its development, and actually realized at the level of specific subject of agrarian entrepreneurship (irrespective of the amount and the form of ownership). In its economic essence, the agrarian

system is a complexly organized economic system that structurally covers the totality of independently functioning and at the same time subordinate subsystems (systems of the second order). The mega- (supranational) level and its effects, the analysis of the world, in particular, European experience, on the development of the agrarian system are also important from the point of view of the combination of natural, economic and social components.

From the environmental point of view, agrarian production is influenced by natural and climatic factors and is directly involved in the complex agro-ecological system. Hence, there is some illogicality in the fact that the agrarian sector, tightly interacting with nature, produces all these well-known adverse environmental effects. The agro-ecological mismatches in Ukrainian agriculture result in poor ecological efficiency of processes, both basic (production, financial-economic, entrepreneurial, etc), and accompanying (those connected with insufficient ecological development of rural areas). We consider it possible to solve the existing problems on the methodological basis of the up-to-date concept of sustainable development of the agrarian sector of national economy.

3. Conditions for ecological-economic development of the system of agrarian economy management

The trends in the development of agrarian economy in Ukraine are characterized by their dependence on numerous direct and indirect factors, internal or external, regulated or unregulated; positive and negative effects on respective processes in major branches of agriculture – crop production, livestock farming, in particular, in the area of land farming and land use. Based on financial-economic indicators (agricultural products index, volumes of production in plant growing and livestock, labor productivity, net profit of agricultural companies), and quantitative signs of interdependent economic, environmental and social processes, our calculations confirmed the relationships between these factors and the delivery of the agrarian sector.

In concentrated expression, the agrarian sector of Ukraine underwent significant quantitative and qualitative changes. According to official statistics,[1] agricultural goods in Ukraine are predominantly provided by crop industry where they produced 72.0% out of total goods in 2017 (61.5% in 2000). In the aspect of commodity producers, it is mostly agricultural companies who provide for agricultural goods (56.4% and 38.4% in 2017 and 2000 respectively). We can not but accentuate on the notable decline in the share of households that produce livestock

[1] *State Statistics Service of Ukraine*, http://www.ukrstat.gov.ua [accessed: 27.05.2019].

(54.2% in 2017 against 79.0% in 2000). With that, the growth of the share of agricultural companies in total production is not manifested only by faster rates of increase of production volumes (the agricultural product index in agricultural companies amounted to 253.5% in 2017 if compared to 2000 against the growth of 119.7% in individual farmers), but also by fundamental qualitative changes, in particular, by the per capita volume of agricultural production (129.4% in agricultural companies in comparison to individual farms in 2017 against the referential values of 62.3% in 2000).

In 2018, the total agricultural output in the country grew by 7.8%. However, this single-year positive dynamics is not the evidence of good absolute level of agricultural production, since after a significant fall in the 1990s, the 2018 value has only come close to the position of the 1990s (98.9%). Much worse is the fact that economic growth is not accompanied by the adequate ecological state of the agrarian system in this country. Therefore, the analysis of the system of agrarian management as complex system in terms of its formation and interaction with the environment requires substantiation of environmental aspects manifested in various structural forms, agro-ecological and general ecologic processes, economic and social consequences.

In this study, we have outlined the most essential environmental pressures that accompany economic development in Ukraine on the whole and that in its specific regions and sectors, namely, pollutions of air, water and soils; enormous increase of wastes; advancement of agro-ecological degradation processes such as soil erosion, etc. This allowed for focusing on major environmental problems as such that have no clear sectoral and territorial division, and, accordingly, require that state mechanisms were renewed and regional administrative environment protection actions (inclusive of those on the level of territorial communities) were actualized.

It should be noted that environmental inconsistencies are caused by imbalanced (and poorly controlled) consumption of chemical synthetic substances, mineral fertilizers, pesticides and other dangerous agrochemicals; lack of ecologically oriented practical measures on utilization and re-utilization of agricultural wastes; and growth of monoculture of plants.

To assess the agricultural impact on the environment, we have made use of methodology available with the European Environment Agency and known as *DPSIR* (see Tab. 1). *DPSIR* represents the causal framework for describing the interactions between society and the environment, its abbreviation components being as follows: (D) driving forces, (P) pressures, (S) states, (I) impacts, (R) responses (this is an extension of the PSR model developed by OECD).[2]

[2] https://www.eea.europa.eu/help/glossary/eea-glossary/dpsir [accessed: 27.05.2019].

Table 1. Ecological parameters for environmental assessment

Groups of ecological parameters	Identification signs
D – Driving force	Socio-economic factors and activities that increase or decrease environmental loads
P – Pressure	Direct anthropogenic environmental load caused by emissions and discharges of pollutants, use of natural resources
S – State	Current environmental state and trends that include quality parameters of the major environmental components
I – Impact	Consequences of environmental changes that effect on public health, nature and biodiversity
R – Response	Specific actions aimed at solving environmental problems

Source: https://www.eea.europa.eu/.

Thus, in the process of the analysis of the "Impact" factor, we have calculated the coefficient of ecological stability for the territory of the Chernivtsi Region on the basis of statistical data available with respect to the structure of 2015–2016 land funds with consideration of special purpose lands and their ecological specificities.

Calculation results allowed for the assertion that the territory of the Chernivtsi Region involved in agriculture is an area of average environmental stability. The indicator of the territory's ecological status correlated with the average anthropogenic loads thus allowing for the conclusion that the region's agrarian territories are now on the verge of complicated ecological situation, since natural plant reserves are exhausted at a level of respective agro-ecological landscapes.

Ecological components of the system of agricultural economy were characterized with the use of two conceptual approaches: firstly, we have chosen the lens of synchronous consideration of major environmental problems accompanying agrarian development, when respective environmental risks are also taken into account; secondly, the analysis of environmentally-oriented measures of state regulation, in particular, those taken at the regional level, was combined with economically acceptable positions, thus directing environmental activity to gaining comprehensive ecological-economic results.

Assessment of state regulation effects on the development of agrarian sector of national economy with respect to motivational goals, conceptual platforms, regulatory measures, mechanisms of state support, all these in conjunction with market changes, was the next stage of the present study.

The study results allowed for the suggestion that it seems appropriate to optimize the system of state regulation within the frame of development of the agrarian sector in the directions as follows: shifts in methodology of priorities; application of regulatory methods for making needful decisions in specific situations; task argumentation;

determination of key actors; clear outlining of urgent decisions and adequate measures; division of obligations and responsibilities; high-priority consideration of the interests of specific (legally provided) target groups of agrarian subjects; adjustment of suggested measures with current market situation and probable market changes; renewal of approaches to evaluation of final ecological-economic situation.

The analysis of components of state regulation in Ukrainian agrarian sector (technical regulation, components of integrated development of agrarian market, formation of up-to-date market infrastructure in agrarian sector) has been carried out. The results showed significant progress. Thus, the today-formed system of technical regulation in Ukraine (standardization and certification) is supposed to base on indicators, technical norms, standards, assessment procedures that concord with world standards approved by international community, while the indicators of quality and safety of agricultural products are chosen as dominant. Conditions are being formed to help adjust the system of state regulation to free market development so that economic actors to their best contributed to the growth of Ukrainian agrarian business. The infrastructure of Ukrainian agrarian market is being developed both in terms of its structure and performance. This allows for concentrating consumer demand on ecologically friendly agro-food product offers.

4. Ways to improve ecological-economic development of agrarian sector in present-day integration conditions

Prospects to solve strategic agrarian tasks cover as follows: (1) organizational and economic issues: introduction of mechanisms for even development of various forms of agrarian economy in Ukraine; creation of modern integrative agrarian associations of logistic type; improvement of agricultural product selling conditions; expansion of sales networks on the basis of improved infrastructure of agrarian market; (2) technical and technological issues: introduction of innovative technologies in the processes of agrarian production; (3) ecological-economic issues: agrarian economy's achievement of configuration of increased use of renewable resources, resources (in particular, agricultural waste's) re-utilization; (4) social-economic issues: internal market's of agricultural products development at the expense of increase of the purchasing capacity by population of Ukraine.

Further perspectives for ecological-based development of Ukrainian agrarian sector would depend on integrated balance of interests of all stakeholders, namely, the society on the whole, the state through its respective institutes and institutions, mechanisms of state regulation and agrarian policy, agrarian business entities as specific carriers for introduction of progressive and cost-effective ecological decision-making. At the same time, of essential importance there will be a combination of differently directed environmental motivations: (1) objective

motivations in the form of mandatory ecological requirements, norms, standards, technical regulations, etc.; (2) subjective motivations as free-will entrepreneurial ecology-oriented initiatives manifested not only as agrarian innovations but also in the form of other-type activity (agrarian tourism, cultural-historic and ethnic elevation of rural territories). It is advisable to combine these into a single system of environmental dominants in the development of the agrarian sector of national economy. It is a matter of different-angle preconditions for ecologization of agrarian business for the purpose of identifying further target perspectives (see Tab. 2).

Table 2. Prospects of ecologization of agricultural management system

Means for regulation of agrarian processes	Directions of environmentally dependent agrarian processes
Public relations	Awareness by the society, in particular, by rural community, of the necessity of agrarian business system's transition to ecologically-oriented principles (on the basis of dissemination of respective information), evolutionary (long-run) development of environmentally oriented agrarian culture, perspectives of development of rural territories on socially and environmentally oriented bases
State regulation	Formation of new methodical approachesto and efficient mechanisms of ecologization of agrarian system on the basis of environmentally significant agrarian policy; selection of the course to balanced intensive and extensive (specific crops) agro-ecological development; improvement of ownership forms at the expense of increase of individual ownerships (lands, forests, etc.) with mandatory compliance with ecological norms of management; active involvement of innovation-investment funds in agrarian production; introduction of environmentally-oriented methods of agrarian management
Market-based self-governance	Efficient combination of market mechanisms of self-governance and state regulation of agro-ecological processes, supply of and demand for high-quality environmentally friendly agricultural raw materials, crops and livestock, total agrarian processes and their final results as most competitive in conditions of present-day world market
Agribusiness	The quality of agricultural management, in particular, its environmental component, effect on practical realization of the state's socio-economic policy in the sphere of production and consumption of food of appropriate quality and safety; as well as the same effects on the formation of productivity of crops and livestock so that the agrarian activity in general and environmentally-oriented agricultural business as an independent sub-sector in particular were commercially reasonable gain profits
Public initiatives and the same by individual cooperative associations	Activation of ecological movement in Ukraine, implementation of agricultural practices held in line with general environmental concept; assistance in practical implementation of *ISO* 22000 standards – "Food Safety Management Systems", *HACCP* principles, *ISO* 14000:2015 – "Environmental Management", *ISO* 9001:2015 – "Quality Management System"

Source: own study on the basis of methodological generalizations.

The importance of the increase of environmental motivations in the development of agrarian business in Ukraine is proved by the world, and, in particular, the European practice of agrarian management. The author's suggestions represent target specifications of ecologically-oriented development of Ukrainian agrarian sector that efficiently combine environmental goals, agro-ecological consequences, and commercial results. The prerequisites for ecologization of Ukrainian agrarian system include appropriate means of regulation of agrarian processes with environmentally-oriented parameters such as renewed social relations, new methodical approaches to state regulation, environmentally significant and efficient agrarian policy, implementation of general concept of environmental protection, innovation and investment resources in agrarian production and business, activation of ecologically oriented movement in rural (territorial) communities, etc.

These positions specify the principles of classification of environmental motivations developed in this study at the levels of perception, purpose, origin, degree of satisfaction of needs, breadth of coverage, and consequences of implementation. The target specifications of ecologically oriented development of agrarian sector at the level of agricultural production and agrarian relations are suggested to be outlined into an integral whole, which presupposes clear definition of environmental goals, substantiation of agro-ecological consequences of respective agrarian processes and simultaneous profits from agricultural activities.

Improvement of methodological approaches to help identify important environmental concepts, transition from scientifically substantiated target motivations to their practical realization at a macro (agrarian sector of national economy and its major components, agrarian relations) and micro (conditions on which separate economic entity is licensed) levels shall be the prerequisites for the development of agrarian economy of Ukraine. Environmental objectives of agrarian development should be in any different way actualized; positive links should be found between environmental motivations for agrarian development and ecological processes (both independent and aggregate agro-ecological), as well as between the consequences of such findings. All these should be implemented into practice of agrarian management and progressive development of agrarian relations in Ukraine.

Agro-ecological approaches should be realized by way of identification of most efficient environmental motivations in agrarian development in the form of perspective strategic tasks, specification of individual tactical decisions towards their practical implementation, effective combination of environmental preconditions, environmental requirements, environmental decisions and environmental consequences in the system of agrarian economics in Ukraine (see Fig. 2).

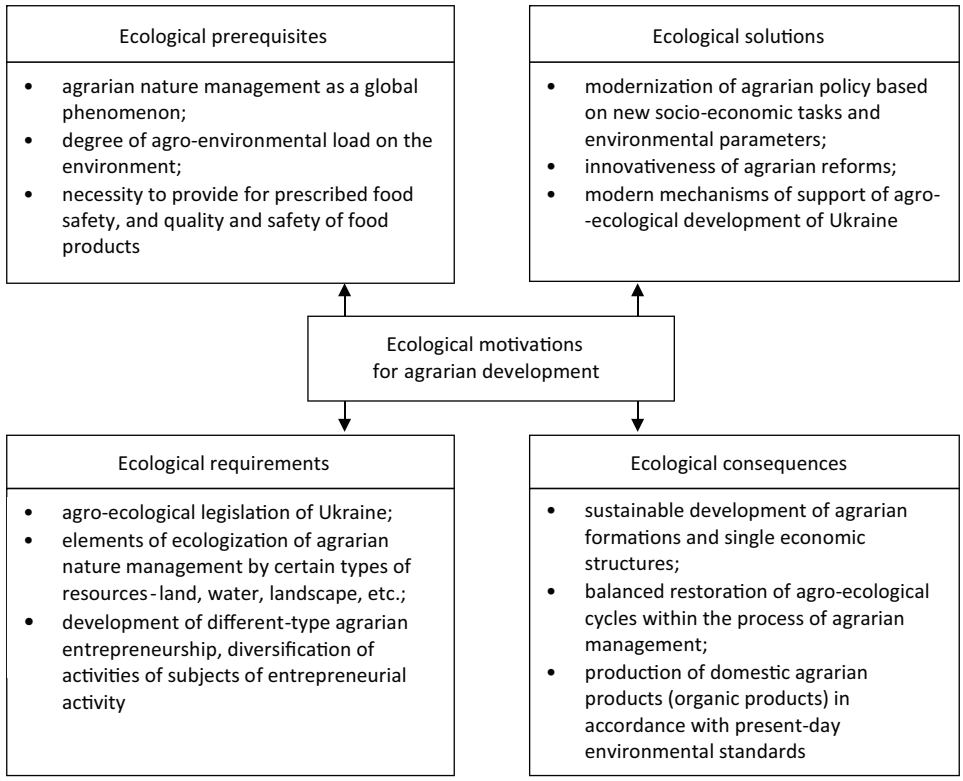

Figure 2. Components of environmental incentives for the development of agrarian sector of Ukraine

Source: own study on the basis of methodological generalizations.

Ecological preconditions for reproduction of the system of agrarian economy are determined by acceptable natural and climatic conditions possessed by Ukraine, and by considerable scope of other renewable natural resources. Proceeding from the above, Ukrainian agricultural policy should be formulated anew accentuating on as follows: (1) strengthening of environmental requirements to all subjects of agrarian economy; (2) ensuring acceptable environmental decisions with due consideration of possible environmental consequences. The methodology for implementation of such mechanisms should be rather differential allowing for correct decisions with respect to agrarian development, in particular, those based complex environmental parameters (at different levels – from state regulation to management system of individual economic entities) in specific market situations and individual manifestations of global challenges.

Potential capacities for improvement of situation with agricultural sector of Ukraine should also be realized on the basis of specific environmental decision-making at the level of single agrarian groups whose (capacities) efficiency

would correlate with production capacities of respective companies and their mobility. The major task lies in targeted actions that would allow for optimization of production and entrepreneurial capacities (in terms of quantity and quality); if necessary, for restructuring agricultural companies;introduction of new raw materials and final products as a result of agricultural production; orientation of agrarian cycles towards ecology (with consideration, in particular, of climatic changes); growing organic products targeting their sales to specific market segments and taking into account consumer preferences; etc. And, well-substantiated up-to-date principles of production of Ukrainian organic agricultural commodities (of social importance, agronomic excellence, ecological safety, market advantages) would become a weighing factor of ecological-economic development of the agrarian sector of national economy.

Perspectives for restoration of Ukrainian agrarian sector on new bases should be oriented towards creation of comprehensive high-quality ecologically safe agrarian product, thus correlating with present-day European and world principles. The aggregate agrarian product, in author's methodological elaboration, is a complex category that represents the processes and the results of agricultural activity, involves natural, logistic and human resources engaged in basic agricultural production cycles, compensates (with certain periodicity) the infrastructure elements of agrarian management, thus creating agrarian commodities.

Proceeding from methodically developed category of "aggregate agrarian product", the components of management of its creation processes are suggested: socio-economic preconditions for improvement, agro-industrial resources, elements for improving quality of agrarian products, integral orientations for the development of Ukrainian agrarian market. These suggestions base on substantiated provision/use of the parameters of aggregate agrarian product's quality and environmental safety; distribution of functional measurements, in particular, at the levels of producer, consumer, and society on the whole. The comparative analysis of indicators of quality and ecological quality of agrarian products (social, technical, technological, sanitary-hygienic, and ecological) shows the perspectives for the formation of respective parameters of activity by the subjects of agrarian sector of national economy.

Basic principles of consistency of agrarian development should be realized at the levels of maintenance of differently complex agrarian system structures; dynamic transformations, intentional interactions at the level of functioning of agrarian systems; efficiency of development and improvement of agrarian systems with the reproduction of basic parameters and integration processes. Simultaneously, it seems necessary to combine various forms of regulation of agrarian relations, namely, state, regional, local (territorial), and market self-regulation.

Conclusions

Major results, conclusions and suggestions of this study are as follows:

1. The substantive methodological scope of the category of "development" represents complex processes that manifest themselves in philosophical, social, political, humanitarian, environmental and other aspects. With respect to economic ideas, it concerns motivational socio-economic and environmental goals and methodically substantiated measures for their practical realization, in particular, in the form of improvement of development of agrarian sector of the economy, adaptation methodology, innovative approaches, market realization of scientific and technical potential, introduction of principles of consistency, and provision of sustainability of development by its integral indicators.
2. The suggested methodological model of ecological-economic development in the form of an agrarian system includes such subsystems as macro-, meso-, and micro-system, which, in their turn, represent the structuredness and functionality of the above agrarian system and undergo targeted management influence. This allows for to consider ecological and economic essences of the agrarian system in its interaction with natural-technogenic, resource-technological, communication-informational and some other subsystems. At the same time, the mega- (supranational) level lies beyond the boundaries of national administrative influence.
3. Methodological analysis of strategic directions in the interdependent development of agrarian production and agrarian relations allows to assess as insufficient: (a) the present-day level of use and ecological reproduction of resources in sectoral development; (b) compliance of agrarian policy of Ukraine with present-day world market interactions, consumption of agrarian products, development of rural territories, formation of agrarian communities and unions.
4. The present-day situation in Ukrainian agrarian sector in the context of use of resources and production of agricultural goods if the system of land farming and land use, crop and livestock production are considered manifests both negative and positive trends.
5. The analysis of ecological dependencies within the system of agrarian economy revealed the causes of significant environmental risks associated with pollutions and individual destructive changes in the main natural spheres directly or indirectly involved in the formation of culture of land farming, plant growing, livestock breeding, as well as showed the decline of cultural and natural biodiversity in the result of agricultural activity.
6. The author's study of the effects of state regulation on ecological-economic development of Ukrainian agrarian sector allows for the acknowledgment of significant progress gained through identification of up-to-date

motivational goals and conceptual platforms for their provision, development and realization of new managerial approaches, setting of integrated combination of socio-economic, technical and ecological tasks for the development of major branches of agro-food system on the whole.

7. Considering the importance of practical realization of the concept of sustainable development of Ukrainian agrarian sector, mechanisms to combine intensive and extensive ways of sectoral development, equitably combine economic profitability, social growth, and ecological security are suggested, as well as forms of regulation of agrarian relations by targeted motivations are defined.
8. Realization of environmental motivations for the development of the agrarian business system in Ukraine as a target perspective requires changes in social and individual stereotypes of perception of the value of nature in general, application of environmentally-oriented managerial actions, taking specific environmental decisions at the level of agrarian companies as economic entities, those (decisions) that practically combine environmental conditions, environmental requirements, environmental solutions and environmental consequences.
9. Improvement of processes of quality management and environmental safety of agrarian product presupposes, in author's substantiation, introduction of new methodological approaches, managerial influence on realization of the perspectives of formation of integrated quality parameters and indicators of economic, ecological and consumer quality. It was given reasons for (with the use of the marketing instruments) the appropriateness of organic production in Ukraine as an alternative to help meet the principles of social importance, economic efficiency, agronomic excellence, environmental safety, and market advantages.

References

17 Goals to Transform Our World, Sustainable Development Goals, UN, https://www.un.org/sustainabledevelopment/development-agenda/ [accessed: 27.05.2019].

Appleby M.C., *Sustainable Agriculture Is Humane, Humane Agriculture Is Sustainable*, „Journal of Agricultural and Environmental Ethics" 2005, No. 18, pp. 293–303.

Barłowska J., Wolanciuk A., Idec J., *Rolnictwo ekologiczne w Polsce na tle Unii Europejskiej i świata*, "Przegląd Hodowlany" 2017, No. 2, pp. 1–4.

Borodina O., *Scientific Basis and Applied Aspects of the Agricultural and Rural Reconstructive Development in Ukraine*, „Economy and Forecasting" 2016, No. 4, http://eip.org.ua/docs/EP_16_4_70_uk.pdf [accessed: 27.05.2019].

Borodina O., Prokopa I., *Theory, Policy and Practice of Rural Development*, Institute of Economics and Forecasting of the NASU, Kyiv 2010.

Ciepielewska M., *Rolnictwo ekologiczne i GMO szansą dla rozwoju polskiej gospodarki? Korzyści i zagrożenia*, "Gospodarka w Praktyce i Teorii" 2014, No. 4(37), pp. 5–20.

Golinowska M., *Rozwój rolnictwa ekologicznego*, Wydawnictwo Uniwersytetu Przyrodniczego we Wrocławiu, Wrocław 2013.

ISO 14001:2015, Environmental Management Systems – Requirements with Guidance for Use, https://www.iso.org/standard/60857.html [accessed: 27.05.2019].

Khodakivska O., *Ecologization of Agrarian Production: Modern Challenges and Perspectives of Development*, „The Economy of the AIC" 2015, No. 5, http://nbuv.gov.ua/UJRN/E_apk_2015_5_9 [accessed: 27.05.2019].

Paszke M., *Rola Rolnictwa Wspieranego przez Społeczność w rozwoju zrównoważonym*, "Gospodarka w Praktyce i Teorii" 2017, No. 4(49), pp. 55–67.

Peden D.G., *Agroecosystem Management for Improved Human Health: Applying Principles of Integrated Pest Management to People*, Annual Meeting of the Canadian Society of Animal Science. Vancouver, British Columbia, Canada, July 5–8, 1998, https://idl-bnc-idrc.dspacedirect.org/bitstream/handle/10625/44660/130901.pdf [accessed: 27.05.2019].

Popova O., *Sustainable Development of the Agrosphere of Ukraine: Policy and Mechanisms*, Institute of Economics and Forecasting of the NASU, Kyiv 2009.

Radziewicz J., *Rolnictwo Wspierane przez Społeczność – zdrowa żywność od rolnika*, „Rolniczy Magazyn Elektroniczny" 2016, http://rme.cbr.net.pl/index.php/wiadomosci-rolnicze/573-archiwum-rme/marzec-kwiecien-nr–72/wiadomosci-rolnicze/870-rolnictwo-wspierane-przez-spolecznosc-rws-zdrowa-zywnosc-prosto-od-rolnika [accessed: 27.05.2019].

State Statistics Service of Ukraine, http://www.ukrstat.gov.ua [accessed: 27.05.2019].

Żmija D., *Zrównoważony rozwój rolnictwa i obszarów wiejskich w Polsce*, "Polityka Gospodarcza w Okresie Transformacji i Kryzysu" 2014, No. 166, pp. 149–158.

Abstract

The conditions for ecological safety and economic growth of Ukrainian agrarian complex are analyzed, as well as the factors effecting on present-day state of agrarian sector are considered and ecological components in a system of Ukrainian agriculture are assessed. Effects of state regulation on ecological and economic development of domestic agrarian sector are characterized. Perspective ways to help solve strategic agrarian tasks include involvement of organizational and economic levers to be the mechanisms for uniform development of various sub-sectors of agrarian economy; introduction of modern integrative logistic-type agrarian associations; betterment of agricultural products' sales conditions; expansion of sales network on the basis of agrarian market's improved infrastructure, etc; indisputable support of innovative technologies in the process of production; consideration of ecological and economic factors in conditions of increased use of renewable resources; re-utilization of wastes of agricultural production.

Keywords: ecological and economic development, agrarian sector, ecological motivation

JEL classification: Q10, Q57, O44