

# ЕКОНОМІКА ТА ЕКОЛОГІЯ ЗЕМЛЕКОРИСТУВАННЯ

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## PROBLEMS OF CONCEPTUAL APPARATUS IN ENVIRONMENTAL ECONOMICS: RELATIONSHIP BETWEEN THE SYSTEMS AND MECHANISM OF LAND USE

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*The analysis of the relation between categories «system» and «mechanism» and their use in the economy of land use is given. It is shown that the ecological-economic mechanism is an important component of the land use system and the main tool for the realization of its functions.*

**Ключові слова:** mechanism, system, land use economics, category, tool, terminology.

### **Formulation of the problem.**

An important factor in the development of any scientific theory is the formation of a clear conceptual and categorical apparatus, a unambiguous interpretation of the corresponding concepts and categories [16]. At present, scientific researches in the field of economics of nature use and, in particular, land use have become a significant development in Ukraine. In view of this,

the problem of improving the existing terminology in this field of knowledge becomes of particular relevance.

In particular, the categories «system» and «mechanism» have long been widely used in business and scientific vocabulary, but their correlation needs more detailed consideration [24]. This, above all, is due to the fact that these categories are often identified with each other, despite the existence of a significant difference between them.

Therefore, for a more complete understanding of the processes occurring in the use of natural resources, including land, it is absolutely necessary to determine the correctness of the identification or delimitation, on the one hand, the category of “land use system” and, on the other hand, the “land use mechanism”.

### ***Review of Literature.***

The work of many scholars, including Bazylevycha V.D. [2], Horlachuka V.V. [12], Dolishn'oho M.I. [8], Kul'hanik O.M. [13], Laveykina M.I. [14], Mazurka P.P. [17], Martyna A.H. [16], Medvedyeva V.V. [18], Mochernoho S.V. [20], Sokhnycha A.Ya. [22] and others, is devoted to the study of economic issues of nature management and land use in Ukraine at the present stage.

However, existing studies are characterized by a broad interpretation of the content of the concepts of “land use system” and “land use mechanism”. In particular, in the economic literature there are often used such phrases as: “system of mechanisms”, “mechanism of interaction of categories in the system...”, “mechanism structure”, “mechanism of functioning of the economic system,” etc. Therefore, it is logical to ask whether there is a mechanism (for example, ecologically-economical) as a separate part of the relevant system (land use system), as one of its elements, and whether it is formed as a result of the interaction of individual components of the system.

In this regard, the **aim** of this publication is an attempt to find the correct relation between the categories «system» and «mechanism» when used in the field of land-use economics.

### ***Presenting main material.***

In science, the ideas of systemicity declared themselves in the middle of the nineteenth century in the study of such complex, dynamic objects as human society and the biological world. Representatives of the new approach became, in particular, Karl Marx, who used the dialectical principle of systemicity in the writing of Capital and Charles Darwin in the creation of evolutionary theory.

Today, the terms “system”, “system approach” have become synonymous with scientific knowledge and deep cognition of phenomena in theory and practice. The thesis that everything in nature and society exists in the form of systems, that is, limited, internally contradictory entities of bodies or components, is no longer doubting among scholars.

In general, the term “system” comes from the Greek word *systema* (integral, interconnected, composed of parts) [10], that is, a set of elements that are in relationships and ties with each other, and form a certain integrity, unity.

But the system, it's not just a set of interconnected elements, but its ability to perform a given function. For example, the land, in particular, the soil, also acts as a system, because of its fertility, it serves as a product of phytocoenosis production..

The system is, first of all, separated in real life by a set of interacting objects (components), the self-movement (activity) of which is directed toward organized integrity [22]. With its external isolation and independence, the system is internally dependent, independent and incomplete. Only thanks to the main property of existence - the ability to interact with components, system-linkages and relationships, it develops in a direction to the whole [12].

One of the most important attributes of the system is its structure. Structure - this is a relatively stable way (the law) of communication elements of a complex whole. The structure of the system is not an invariant aspect of the system. When quantitative changes in the system go beyond the scope and cause its qualitative changes, the latter always act as a change in the structure of the system.

The connection of elements in the system is subject to the dialectics of the relationship between the part and the whole. However, each element has its own behavior and state, which in general are different from the behavior and condition of other elements and the system as a whole, its own function. An element does not belong to the system with the totality of its properties and characteristics, but only those properties, due to which it carries a certain functional load in the system and occupies a corresponding place in it. On the other hand, the properties of the system can not be reduced to the algebraic sum of properties of its elements, which characterizes the system's emergence [26]. This concept is closely related to the concept of the structure of the system, since the structure itself is a mechanism for the implementation of the emergence and determines the way in which the properties of individual elements appear in the context of this system.

The term "mechanism" also has an important place in the science, but in every field of knowledge it has its own specific meaning. In particular, in one dictionary the mechanism is defined as a set of intermediate states or processes of any phenomena [19], in the other – as a set of organs, means and methods (methods, techniques, technologies) of interaction between two subsystems of social organization – managing and controlling [25].

«Mechanism» in Greek means an instrument, device. This concept was formed in scientific researches of the second half of the XX century. The main content of this concept is: functions, phenomena, processes, methods, methods that contribute to the attainment of the goal [8, 11, 13, 20]. In our opinion, it is important here that the mechanism is understood as a system.

Consequently, the system is not just a set of interconnected elements. It exists only when its components interact and therefore perform a certain function. A certain order of phenomena, processes, through which the ultimate goal is achieved (in particular, the corresponding function is carried out) forms the essence of the mechanism. The mechanism determines the way in which the properties of individual elements appear in the context of this system, and the process of interaction of these elements. Considering the relationship between the system and the mechanism, it should be noted, firstly, that this relation between the two interrelated categories, when the first one is general, and the second - a specific one, intended to realize the purpose of the first, and secondly, we should not confuse the concept of "system" and "mechanism", that is, the stages of the transformation of elements with the actions through which it is carried out.

Since it is impossible to study (to investigate) the properties of a certain component without having the idea of the whole [9], the consideration of the essence of land use systems should begin with the characteristics of higher-level systems: the system of nature management, which in turn is a subsystem of the country's economic system.

In economic literature there are different approaches to the definition of the economic system. In the most general-

ized form, the economic system is defined as a set of interconnected and properly organized elements of the economy, forming a certain integrity, the economic structure of society. The essence of the economic system determines the specific historical form of ownership and a set of economic relations that correspond to certain productive forces and interact with them, develop on the basis of objective economic laws [4].

The economic system consists of three main components: the productive forces, economic relations and the mechanism of management [2], which is formed in the process of interaction of individual elements, parties of these links in the economic system [17].

The term “economic mechanism of the economic system” in scientific works took a special development in post-socialist countries in the second half of the 1960s, when scholars sought to emphasize the concrete driving force of the functioning system [1]. Modern researchers under the economic mechanism understand in aggregate: the economic system, its structure; interconnections between component and territorial elements of the system; way of functioning of the economic system; system of forms and methods of management of the functioning of the economic system; the engine of the development of the economic system; method and quality of life of the population [7].

Therefore, the economic mechanism serves as the main instrument for implementing the economic policy, ie achieving the relevant economic goals. If the generalization of the main functions of the economic mechanism, it must ensure the effective interaction of all elements of the economic system (productive forces, technical and economic and industrial relations) in all spheres of social reproduc-

tion, as well as all components of each of the elements mentioned. In addition to these most important functions, the economic mechanism can perform a number of secondary, such as stimulating scientific and technological progress, the rational use of resources, including natural, etc.

In turn, the system of nature use - in general and the land use system - in particular, is an integral part of the country's economic system. Because of this, the place and functional properties of the economic mechanism in the economic system in generalized form can be extended to the functions of the corresponding mechanism in the system of land use, since the latter acts as a subsystem of the first.

Land use is a complex, multifactorial system that reflects the interaction between the environment, society and the individuals. All components of the natural environment and their properties, methods and means of management are so interconnected that a virtually insignificant change in the influence of only one of these factors may lead to significant changes in the man's acquisition of agrarian products [6].

At the present stage, land use systems as complex objects are characterized by functional diversity (by ownership forms, categories of lands and groups of land users), relative stability and certain dynamism (transformation of the structure of land, change of landowners and land users). Therefore, in the conditions of the transformation of land relations, the principles of complexity and systemicity must correspond to the formation of land use systems at least at three levels: national, regional and local (local) [23]. The essence of this approach is to consider this problem from general to partial.

At the same time, regional systems of land use should be developed on an alternative basis as models that serve as bench-

marks for choosing the best solutions on the ground, taking into account the direction of state policy, different forms of economic management, social stratification, and the various provisions of commodity producers with productive resources, and competition [14]. These models should favorably differ from the «usual» complex of interconnected technological, technical, economic, social nature reproduction and nature protection measures. To do this, it is necessary to bring the production processes in agriculture in accordance with the various conditions of landscapes and environmental laws, as well as eliminate the causes of certain violations. The degree of adequacy of such models of land use depends on the degree of identification of interconnections between the elements of the system.

The land use system should include three main subsystems: subjective (land users, landowners, state), object (land, land) and technological (directly land use) [14]. At the same time, each of the subsystems has its own internal structure, which consists of a number of components and defines a wide range of activities related to the use of land resources, the formation of adequate mechanisms for the implementation of state socio-economic policies. The degree of their integration depends on the effectiveness of the system as a whole.

Interaction of the subject and object subsystems determines the scale, scope, nature and intensity of society's impact on land resources and vice versa. Analysis of the development of nature and society allows you to highlight the interaction of these two systems, where the prerequisites of life first become the conditions of self-reproduction of the second. Their interaction is carried out within the social sphere and, consequently, obeys its laws on the principle

of primacy of laws of the highest form of motion of matter.

Since the technological subsystem of the land-use system is formed as a result of the interaction of the other two subsystems (subject and object), by analogy, the relation between the categories “economic system” and “economic mechanism”, it can be argued that it is a mechanism of land use and determines the way for realization of the goal of the whole system. The mechanism of the higher-level system (economic mechanism of the economic system) «permeates» the corresponding subsystems, ensures the efficient functioning of lower-level mechanisms, which in turn are its components. Therefore, considering the technological subsystem of land use as a basic, determinant of economic activity, in its development, it is necessary to take into account the whole range of internal and external interactions, social, economic and environmental components.

The technology subsystem of land use (or land use mechanism) may have different models for the implementation of its components, which involve different approaches and methods of economic activity. Each model should be consistent with a system of goals and socio-economic priorities that ensure that relevant features are taken into account both at national and regional levels.

Thus, the actual systemic principle of land use, aimed at harmonizing the three components (social, economic and environmental) of the implementation mechanism of the goals of the land use system, provides an optimal balance between economic growth, improving the quality of land resources, and satisfying the material and spiritual needs of the population.

The specifics of agricultural land use is that the main productive resource is land. How efficiently it is used by a land

user depends not only on the value of income earned by them, but also on the welfare of society as a whole and every citizen in particular. Because of this, the state should create a mechanism for using land resources to meet the needs of entrepreneurs-land users and the requirements for the protection and rational use of land as a natural resource.

Under market conditions, the economic mechanism of ecologization of agricultural land-use is of particular importance (and perhaps the most important). Because in the conditions of private ownership of land, or not the only effective means of achieving ecological goals in land use, determined at the appropriate levels is the economic incentives for soil and water protection measures, based on the principle of “the environmentally hazardous use of land resources should become economically unprofitable” and vice versa: environmental safety compliance (due to environmental restrictions and penalties for their violation) should ensure balanced economically and efficient land use development. Consequently, the mechanism of agricultural land use as a way to use or attract land into economic circulation should combine both economic and environmental components.

The economic component of the agricultural land use mechanism includes all regulators of the impact on land users, whose purpose is to encourage the latter to rational land use. On the one hand, it is the provision of tax and credit privileges to individuals and legal entities that, at their own expense, carry out soil protection measures. On the other hand, it is state prediction of penalties for inefficient agricultural land use.

The ecological component includes a set of measures aimed at protecting land resources and improving soil fertility [18]: increasing areas under ecologically

stable lands; the exclusive observance of environmentally sound standards for all types of anthropogenic loads on land resources; providing increased reproduction of arable land productivity, creating favorable conditions for the formation of sustainable agro-landscapes; differentiation of land use principles, etc.

Thus, the mechanism of agricultural land-use must be based, first of all, on the harmonious combination of economic and environmental constituents, economic interests of land users with the requirements of environmental safety. The state can ensure implementation of the ecological and economic mechanism of agricultural land-use through: development of normative legal acts on achievement of ecological stability in interaction of society and nature; implementation of national programs for the transition of agricultural land use to the principles of sustainable development; regulation of investment activity directed on further ecologization of agricultural production.

### ***Conclusions.***

The categories «system» and «mechanism» are interconnected: the first of them is general, and the second – a specific, intended to realize the purpose of the first. Because of this, mixing these concepts is not correct.

Any system consists of subsystems and at the same time itself is a subsystem of a higher level system. In particular, the land use system consists of at least three subsystems: object, subjective and technological, and at the same time it is a subsystem of a higher level system - the system of nature use.

The term «system» can be defined as a set of interconnected elements that performs certain functions. The very method of performing these functions is defined

by the term «mechanism», since the latter combines a certain set of actions, operations to achieve the ultimate goal of the system. The mechanism is formed when the interaction of subsystems of a certain system and at the same time is its attribute.

One of the main functions of the land use system is production, namely the ability to produce crop production in the form of a crop of crops with a minimum of costs without prejudice to land resources and the environment as a whole. This is achieved through the mechanism of agricultural land use, which should be formed by the state as a certain way of using land or involving them in economic circulation.

The mechanism of agricultural land use includes economic and environmental components. The first one is aimed at ensuring the economic efficiency of land use, and the second - in complying with the requirements of environmental safety. On this basis, one of the urgent tasks faced by specialists and scientists in the field of nature economics is the harmonious combination of economic and environmental components of the land use mechanism.

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- Мартин А.Г., Барвінський А.В.,  
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- ПРОБЛЕМИ ПОНЯТІЙНОГО АПАРАТУ  
ЕКОНОМІКИ ПРИРОДОКОРИСТУВАННЯ:  
СПІВВІДНОШЕННЯ СИСТЕМИ ТА  
МЕХАНІЗМУ ЗЕМЛЕКОРИСТУВАННЯ**
- Наведено аналіз співвідношення категорій «система» і «механізм» та їх використання в економіці землекористування. Показано, що еколого-економічний механізм є важливою складовою системи землекористування і основним інструментом реалізації її функцій.*
- Ключові слова:** механізм, система, економіка землекористування, категорії, інструмент, термінологія.
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- Мартын А.Г., Барвинский А.В.,  
Тыхенко Р.В.**
- ПРОБЛЕМЫ ПОНЯТИЙНОГО АППАРАТА  
ЭКОНОМИКИ ПРИРОДОПОЛЬЗОВАНИЯ:  
СООТНОШЕНИЕ СИСТЕМЫ И МЕХАНИЗМА  
ЗЕМЛЕПОЛЬЗОВАНИЯ**
- Приведен анализ соотношения категорий «система» и «механизм» и их использование в экономике землепользования. Показано, что эколого-экономический механизм является важной составляющей системы землепользования и основным инструментом реализации ее функций.*
- Ключевые слова:** механизм, система, экономика землепользования, категории, инструмент, терминология.