

# ЗЕМЛЕУСТРІЙ, КАДАСТР І МОНІТОРИНГ ЗЕМЕЛЬ науково-виробничий журнал

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# УПРАВЛІННЯ ЗЕМЕЛЬНИМИ РЕСУРСАМИ ТА ЗЕМЛЕУСТРІЙ

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## THEORETICAL AND METHODOLOGICAL PRINCIPLES OF LAND MANAGEMENT PROCESS

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*It is substantiated that the basis of the theory of land management is its functions: provision of all interested persons with objective information on the regulation of relations and elaboration of rules for the coordination of state, public and private land interests in the system of land resources management and land use.*

**Keywords.** Land management, land management process, land management project, land management procedures, land management activities.

The issue of land management science as a component of general economic science Tretiak A.M. has been investigating since 2002, and the systematic results of research have been described in many scientific sources [1]. Generalization of the considered by A.M. Tretiak theories of land management shows that its essence is interpreted ambiguously and its occurrence is accompanied by diverse content of land management actions, which are manifested in various spheres: legal, socio-economic, engineering, environmental, organizational and economic, and others [2].

He states that “on this occasion, in 1930, Professor K.N. Sazonov wrote:” ... each author treats the land system from his special point of view; it is therefore quite natural that the lawyer sees in the land management the predominantly law-making act, an economist - an economic act that socially grows in a more or less complex economic phenomenon, the technician considers land management as an action aimed at changing (transforming) land use, the politician sees in the land management its social essence and conse-

quences, etc.” [2, p.255]. S.A. Udachin believed that “land management is a triangular prism in which technology and law are refracted through the economy.”

In the article “Theoretical concepts “land management process”, “land management procedure” and their relationship” we substantiated the notion of land management process as a set of land-use activities undertaken, if, in one application, one proceeding is carried out, and the land management procedural legal relations that arise during the land-use proceedings, and the proposed conceptual model of land management process on the present stage of development of land management in Ukraine [3]. Therefore, the task of substantiating the components of land management process arose.

**The purpose of the article** is to substantiate the theoretical and methodological principles of land management process.

### ***Presentation of the main research material.***

As one of the peculiarities of land management at the present stage Nosik V.V. highlights the legislative consolidation of the priority of environmental and landscape approaches to the implementation of activities related to land management activities. He sees that land management should be carried out comprehensively with the implementation of such functions of state and self-regulatory regulation of land relations, such as planning of territories, maintenance of state land cadastre, registration of rights to land, since land management cannot be carried out without the availability of appropriate planning documentation [4]. At the same time, in his opinion, the planning of the territory cannot be completed without land management.

Tretiak A.M. believes that the land system includes, in addition to the set

of socio-economic and environmental measures contained in the law “On Land Management”, **organizational, legal and engineering-technical actions** aimed at regulating land relations and rational organization of the territory for rational use and protection of land [2]. Under the rational use of land, in today’s conditions of development of land relations in Ukraine it is necessary to understand the most effective, in terms of meeting the needs of society, variant of its target and functional use, organized, in turn, most effective for specific conditions of space and time in a manner in accordance with objectively existing principles of the interaction of society and nature [5]. Within the framework of the interaction of “society-nature”, the following aspects of the essence of rational land use are distinguished [2, p.303]:

- Natural-biological, related to the study of the functioning of land as a component of the natural complex and the environment for plants and living organisms;

- socio-economic, reflecting the impact of social processes and policies of the state, public, including land relations on the use of land, which explains the economic side of the use of land as a resource;

- technological, connected with the study of the technical effect on the earth, technology of use, communication of rational use of land resources with scientific and technological progress;

- legal, related to the study of the role and significance of the influence of law, the legal activity of the state through the land management, regulation, administration, stimulation, taxation, etc., on the organization and implementation of rational use and protection of land.

Accordingly, **land management science** should be understood as a com-

prehensive branch of economic and legal science, based on the legislation of Ukraine on land relations and rights to the regime of land and natural resources, rational organization of the territory of administrative-territorial units, economic entities carried out under the influence of the public-productive relations and the development of productive forces, studies and analyses the structure of land management bodies, land management procedures and practices, makes forecasts of development and proposals on the implementation of scientific conclusions in the legislation on land management and land management, as well as exploring the history of land management and links with other sectors of the economy, environment, law.

It follows that *the theory of land management* is a sub-sector of land management science. Although one should pay attention to the fact that such a division of information is conditional and subject to the doctrine of the theory of state and law: industry, subdivision, institute, norm. Any branch of economic or legal science can only be arbitrarily considered independent, since all information is interconnected, and many studies today are aimed at an analysis of intersectoral space, where significant gaps and collisions are created precisely because of such a division. Quite often, scientists make significant mistakes if they are based only on economic laws or legislation and follow their directions.

Therefore, we believe that land management science is associated with a neo-institutional economic theory, the basis of which is the theory of property, the theory of transactions and the theory of deals. Therefore, it is often difficult to distinguish between which sector of the economy or law one or another block of information belongs, especially in the

case of integrated industries to which land management and civil processes belong. It is clear that after considering the case by the court the decision on the validity or illegality of the actions of the land surveyor will have an impact on the theory of land management process, but the very procedure for considering this category of cases cannot be identified with the land management process.

The current condition of land management science indicates the presence of many unsolved issues of theoretical and methodological nature. Among them understanding of the essence of the land management process and its place in the system of Ukrainian law is distinguished by its tendency to “chronize”.

In particular, one can distinguish the following approaches to understanding the essence of land management process:

- land management process - is the executive and administrative activities of public administration bodies;
- Land management process - is the activity of bringing to administrative responsibility and application of measures of administrative coercion for violation of land legislation;
- land management process - is part of a wider category - land management procedures;
- land management process - the procedure for exercising the powers of executive authorities to deal with complaints from private individuals (ie so-called quasi-divisive administrative process);
- land management process - the procedure for reviewing cases in administrative courts (i.e., administrative justice).

Thus, in general, the process is inseparable from the procedure: the process is a movement, modification of the phenomenon, and the procedure is

the concrete materially defined stages, phases, elements of this movement. That is why, obviously, the process and procedure are perceived in the world almost as synonymous concepts. Yes, MV Zwick notes that, for example, in France, instead of the Code of Criminal Procedure, in 1808, a new one, called the Code of Criminal Procedure, was adopted in 1958 [6]. In the United States in 1985, a commentary on the Civil Procedure “Civil Procedure” was issued. In addition, Recommendation No. Rec (2001) 9 of the Committee of Ministers of the Council of the European Union states that in practice *the judicial process* is not always the most appropriate way to resolve an administrative-legal dispute [7]. In Poland, there is no distinction between the process and the procedure, and the procedure for reviewing administrative cases by public administration bodies is determined by the Code of Administrative Procedure [8]. There is no such distinction in the Netherlands as well [9]. For example, in this country, the Act on general administrative law defines almost the whole range of administrative and legal activities, including both judicial and extrajudicial proceedings, namely[10]:

- the publication of individual administrative acts (orders, conclusions), including on the application of the person;
- Appeal of administrative orders by submitting “objections” and “administrative appeals”;
- Appeal of orders (conclusions) in court;
- relations on monitoring compliance with legislation;
- the order of the use of “compulsory measures”, namely, physical measures, which are used by or on behalf of the administrative body, and are directed against activity (inaction) which

hinders the performance of duties established by or in accordance with the statutory norm;

- some general issues of the exercise of authority by administrative bodies, in particular the relationship with the right to issue orders (conclusions) on behalf of the administrative body (“mandat”) and the relationship with delegation of authority.

Consequently, it is impossible to contrast the process and the procedure, and it is even less possible to assume that in some cases there is a process, while in others it is a procedure, the process does not exist without procedures, and the procedure is the material embodiment of the process.

The above proves the necessity and legitimacy of the universal understanding of the legal process and the administrative process. Therefore, we propose the following system of features and requirements for land tenure and legal relations in general and land management process, in particular:

a) Participation of a special subject in the implementation of these means is obligatory. This special subject is the so-called “public administration”, which is represented in the form of state bodies of executive power or executive bodies of local self-government [11];

b) the use of the said means exclusively based on the law, and in cases provided for by law – and on the basis of sub-legal normative-legal acts;

c) the use of the indicated means exclusively within the competence of the relevant subject of “public administration”. Signs for items b) and c) are stipulated by the direct rule of Part 2 of Art. 19 of the Constitution of Ukraine, according to which bodies of state power and bodies of local self-government, their officials are obliged to act only on



the basis of, within the limits of authority and in the manner provided by the Constitution and laws, is specified in the work, observance of the law is a necessary condition for the existence of any state body [12];

d) the possibility of implementing this process with the use of state coercion, based on the authority of the state and the force of law, the existence of legislation that would clearly regulate the content, grounds and procedures for the application of measures of state coercion; compliance of activities with regard to application of measures of administrative-procedural coercion to legal norms; which is aimed at the subject and object of management, in order to achieve the established parameters of activity, the development of certain forms of behaviour and the maintenance of social discipline [13];

e) realization in the land management processes of the rules of law in the form of enforcement. Since, as noted above, the implementation of administrative and legal means is based on the rules of law, such implementation cannot be carried out otherwise than in the form of application of these norms. As O. F. Skakun states, enforcement is in: giving some participants legal relationships with subjective legal rights and assigning to other subjective legal responsibilities; resolving a dispute over a right; determination of the legal liability of the offender [14];

e) implementation of goal-setting in the form of a priority of ensuring the rights and freedoms of citizens. This attribute follows from the direct norm of art. 3 of the Constitution of Ukraine, according to which a person, his life and health, honor and dignity, inviolability and safety are recognized in Ukraine as the highest social value. Human rights

and freedoms and their guarantees determine the content and direction of the state's activities. The approval and guarantee of human rights and freedoms is the main responsibility of the state;

g) control over the use of land management procedures.

As a conclusion, the stated universal understanding of the land management process will contribute to the proper level of law enforcement in public administration.

Today, it can be objectively stated that there is a significant block of information that needs to be explored, as there are significant problems in practice and in the legislation regulating the organization and procedure of land management activities.

The theory of land management process is a relatively independent set of information about:

- relations that are formed in the land management process and their subjects (land management procedural relations);
- the conditions for implementing the land management process (proceedings, stages, phases) and the principles inherent in it;
- the procedure on the performance of notarial proceedings.

As for the system of the theory of land management process, it should be understood as the whole complex of various information, thoughts, hypotheses, etc., which were set out on paper or electronic media and systematized in the legislation, other normative or by-laws, dissertations, monographs, textbooks, manuals, registered as inventions relating to this field of knowledge. Moreover, today we can talk about the fact that the theory of land management process should provide information not only about the information released, but also to solve the issues posed by society, etc.

The system of the theory of land management process resembles the Mendelev table, which already has identified elements, but there are gaps that over time should be eliminated. *For example*, one can agree with the scientists who have found a lack of a procedural link between the activities of land managers and architects of Ukraine, and this despite the fact that they perform one state function, as well as taking measures to protect land and their legal regime can occur not only in documentation for land management, but for urban planning as well.

Thus, the systematization of information can occur not only on formal grounds, if it already takes place in the regulations, but also conditioned by the needs of social relations, a comprehensive layout of land management services in a particular area of relations. *For example*, this applies to the state registration of land plots and rights to them. Thus, systematization of information will reveal those gaps in the theory of land management process, which need to be filled in with the necessary information.

Conceptual apparatus should be considered as one of the most important elements of the theory of land management process, which allows you to build holistic scientific concepts so that they rely on common terminology, understandable to all professionals.

Elements of the theory of land management process are also **theories, concepts** - specific elements of the subject of this science, which, on the one hand, is the result of knowledge, and on the other - the object of study at a new stage of cognitive activity of scientists. Unfortunately, the current state of development of land management and land management is far from desirable. In

many cases, land surveyors perform their duties and responsibilities rather “template”, which can be explained by many circumstances. In particular, it should be borne in mind that ordinary citizens do not know how best to exercise their rights to land and other natural resources. They will listen to their loved ones, neighbours, acquaintances, although it is better to consult a land surveyor. Usually a person comes in and without consultation asks to explain how to solve a land dispute related to the boundary of the land, although it is more appropriate to conclude a contract for land audit. The low standard of living of the population does not allow land surveyors to establish an adequate amount of their labour remuneration, which leads to the need to make a large number of land management actions, thereby reducing the attention of the particular applicant. The mentality of the Ukrainian people is that, until the person is forced by the circumstances to commit an act, it will not act, and the necessary documents will be issued also in the last term. Therefore, quite often, citizens do not issue rights to their land for years and do not receive certificates of ownership.

But one must also take into account the fact that a significant part of land managers after graduation from education in land management practice literally ceases to improve, in particular, **does not** study professional literature. As a result, the level of knowledge is limited by the land legislation of Ukraine, although such knowledge is a professional minimum. So, if there is a need to perform land management works for which there is no legislative regulation - they cannot perform them as procedural actions. Because of this, quite interesting scientific concepts re-



main so far only in the theory of land management process. *For example*, the concept of simplifying the number of approvals through zoning of land by types (subtypes) was suggested [15]. It is clear that such a concept enriches the theory of land management process and suggests perfect ways to protect the rights on land of citizens.

There are proposals for introducing into the land management process the latest advances in science and technology, for example, standards, norms and rules, which allows to improve the quality of documentation on land management [16]. But such a proposal is not discussed in scientific papers and official sources.

Consequently, the latest hypotheses, concepts, and theories are the quintessence of the theory of land management process, which indicates the prospects for its further development. But any development takes place in certain directions, namely:

- Improvement of the procedure for the implementation of land management proceedings;
- Involvement of the latest advances in science and technology in the land management practices;
- Development of the best land management legislation;
- Training of land managers;
- Preparing students for future professional activities.

The above shows the need for further development of the science of land management process. It will have a significant impact on improving the norms of land legislation, which is part of the land management procedure, on the identification and development of land management institutions, the formation and consolidation at the legislative level of the subordination of land man-

agement procedural legal relationships, their procedural rights and obligations. To characterize the land management process, namely the essence, the unity of its norms and institutions, it is also necessary to consider the question of its relationship with procedural law, to focus on the analysis of its subject and method of legal regulation.

Thus, the land management process mainly can be characterised as:

- 1) The kind of social process inherent in any legally significant activity;
- 2) Has a legal nature, its purpose - legal proceedings of land management (design, land violations, land disputes, complaints, etc.);
- 3) Is regulated by the procedural rules of national and international acts on the basis of which are carried out;
- 4) Is the power of authorized agents - competent authorities and officials;
- 5) Consists of procedural stages - a set of procedural actions related to the immediate purpose;
- 6) Is aimed at the adoption of legal decisions of general (normative acts) or individual (law-enforcement land management acts, in accordance with Article 20 of the Law of Ukraine "On Land Management", land management is obligatory on land of all categories, regardless of the form of ownership) nature;
- 7) Is recorded, as a rule, in documented acts having legal status, by various technical means.

**The main function of the theory of the land management process** is to provide all interested persons with objective information on the regulation of relations that are formed when performing land management procedures, improvement of the order of the activities of land surveyors, etc. This global function can be expanded to smaller functions that are reduced to:

- Ensuring a proactive development of positive theoretical concepts that must be embodied in legislation and land management practices. Namely, science should not explain why and on what grounds there were changes in the legislation, since the projects of the corresponding changes to the norms of material and procedural legislation should be discussed in advance with scientists who are engaged in studying problems of the notarial process. For example, the introduction of a market of agricultural land cannot be carried out in a civilized way without zoning of land by types (subtypes) of land use and the introduction of appropriate land management regulations as restrictions on land use. And such a political and socio-economic event should be discussed with the involvement of scientists and land managers. Namely, science can develop certain criteria in order to prevent and qualify the violation of the rights of citizens in actual land relations;

- Scientific analysis of the needs of society in land management services and the introduction of scientific hypotheses in legislation and land management practices;

- Studying the problems of applying land legislation to legislation and developing appropriate proposals that may prevent negative consequences for citizens;

- Development of more specific legislation that will clearly regulate the activities of land surveyors, etc.

Namely, the boundaries of the theory of land management process cannot be and inexpediently defined by certain frameworks, which can lead to disadvantages in the activities of land managers, which are related to the need to eliminate gaps in the regulation of inter-branch space, to establish relation-

ships between persons performing land management functions.

The second fundamental ***function of the theory of land management*** is the elaboration of rules for the coordination of state, public and private land interests in the formation of land plots and rights to them, their intended purpose and other components of the land use regime.

Taking into account the above, we have developed a logical-semantic model of the methodological process of forming a system of land management process (Fig.). The management system is a form of real implementation of managerial interconnections. It acts as if it were in the form of a real-life substance, through which the land management process in the system of land resources management and land use acquires a specific content and concrete expression, and the function of management - practical implementation.

In reality, management activities are the functioning of a land management system. The system of land management process is composed and functions not only in accordance with the content of the management function and the nature of the relations that underlie management interconnections, but also in accordance with the conditions in which the system of land management process is formed, as well as in accordance with the inherently proper system of land management process and principles of its construction, functioning and transformation.

The system of land management process is decomposed into a subsystem, the allocation of which is clearly visible from the figure. The first subsystem is that it is considered to be regarded as a management system - a set of administrative bodies, subdivisions and executors that perform the functions assigned to them and solve their tasks, as well as

a set of methods by which management influence is exercised through the land management process. Such a subsystem of the land management system can be

considered as the unity of organization, technology and management methods.

The totality of blocks basically covers the whole subsystem of the

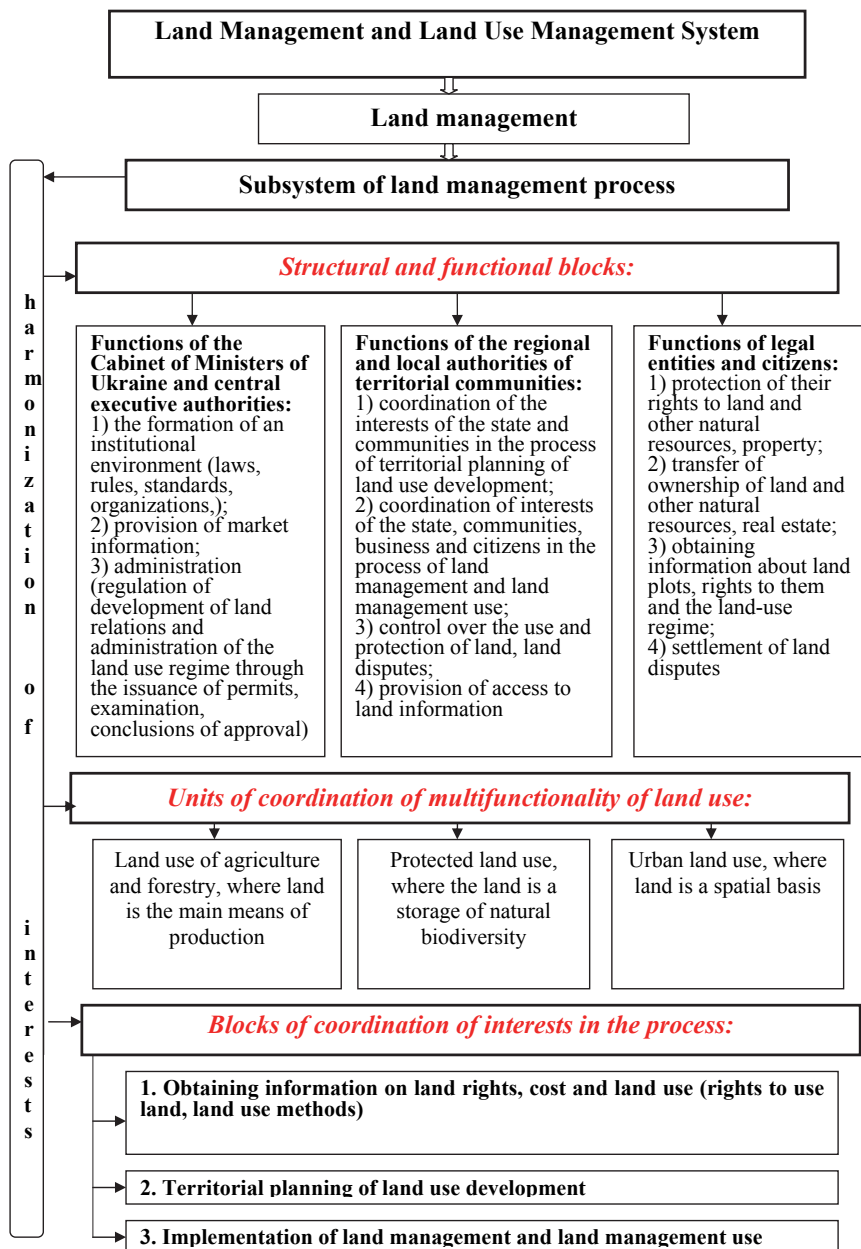


Figure. Logical-semantic model of the methodological process of forming a system of land management process.

land management process, although in relation to the relevant units, it can be specified that there are additional blocks that play a role in this subsystem. Such blocks can be, for example, blocks of national interests and even national managerial stereotypes. These blocks should be fundamentally distinguished from the first dedicated block of administrative ideology, since they are the expressions of certain types of ideology in society, in general, and not just the ideology of the land management process. The main named blocks and blocks, which arise in specific conditions and which are clearly expressed situational, are in dynamic interaction with each other, and with elements of the subsystem of the land management process of the control system.

Figure. Logical-semantic model of the methodological process of forming a system of land management process.

### **Summary**

The presented studies confirm that the theory of land management process is a system of land management and procedural actions and information that are continuously improved and provide public needs for necessary protection of land rights of citizens, legal entities, state and territorial communities, as well as information on the best ways of activity of land surveyors on protection and protecting these rights. The basis of the theory of land management is its functions: providing all interested persons with objective information on the regulation of relations and elaboration of rules for the coordination of state, public and private land interests in the system of land resources management and land use.

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**ТЕОРЕТИКО-МЕТОДОЛОГІЧНІ  
ЗАСАДИ ЗЕМЛЕВПОРЯДНОГО ПРОЦЕСУ**

*Обґрунтовано, що основу теорії землеупорядного процесу складають його функції: забезпечення всіх заінтересованих осіб об'єктивною інформацією щодо регламентації відносин та вироблення правил узгодження державних, громадських та приватних земельних інтересів у системі управління земельними ресурсами та землекористуванням.*

**Ключові слова.** *Землеустрій, землеупорядний процес, землеупорядний проект, землеупорядна процедура, землеупорядні дії.*

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**Третяк А.Н., Дорош І.Н., Купріянич І.П.**

**ТЕОРЕТИКО-МЕТОДОЛОГИЧЕСКИЕ  
ОСНОВЫ ЗЕМЛЕУСТРОИТЕЛЬНОГО  
ПРОЦЕССА**

*Обосновано, что основу теории землеустроительного процесса составляют его функции: обеспечение всех заинтересованных лиц объективной информацией о регламентации отношений и выработки правил согласования государственных, общественных и частных земельных интересов в системе управления земельными ресурсами и землепользованием.*

**Ключевые слова.** *Землеустройство, землеустроительный процесс, землеустроительный проект, землеустроительная процедура, землеустроительные действия.*

## **PROBLEMMING OF FORMATION OF LANDLINES OF TERRITORIAL COMMUNITIES IN THE CONDITIONS OF DECENTRALIZATION OF THE POWER**

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*One of the main tasks of the decentralization reform is to strengthen the role of territorial communities with the provision of their right to dispose of land, both within and outside settlements. The article analyzes the tendencies of decentralization of power in the Kyiv region.*

**Keywords.** *Decentralization of power, management of land resources, united territorial community, problems of modern land use.*

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### ***Problem statement.***

Ukraine is actively implementing reforms aimed at decentralization. These processes step by step provide a basis for the uniform development of territories and, ultimately, a successful country. One of the most important challenges of the present is the formation of capable territorial communities and effective self-governance.

The issue of decentralization of powers was reflected in the Concept of Reform of Local Self-Government and Territorial Organization of Power in Ukraine, approved by the Cabinet of Ministers of Ukraine Decree № 333 on April 1, 2014 [1]. It states that one of the

urgent problems of the development of local self-government is to overcome its detachment from the solution of issues in the field of land relations. To solve it, it is proposed to provide local governments with basic level of authority in resolving development issues (land allocation, construction permits, acceptance into buildings), determining the material basis of local self-government property, in particular land owned by the territorial communities of villages, settlements, cities (communal property), and the proper tax base, as well as granting territorial communities the right to dispose of land resources within their territory, combine their assets and resources in cooperation



of local communities to implement joint programs and effective provision of public services related communities.

To date local self-government bodies can engage issues of land relations, exclusively within the settlements. This system needs to be changed by transferring the basic right to dispose of land resources to local governments, territorial communities, and the state to retain the right to ensure control over the rational use of land resources.

### ***Analysis of recent research and publications.***

The issue of managing the land resources of the united territorial communities was studied by many Ukrainian land surveyors, among whom a significant contribution to the scientific achievements was made by such scientists as A. Tretyak, A. Martin, O. Dorosh, M. Khvesyk, B. Danylyshyn, I. Gorlenko, F. Zastavnyi, N. Zelins'ka, Ya. Pavlovich-Senet, A. Pavlyuk, S. Teleshun, O. Shablii and others.

Many experts and scholars point out that the Ukrainian government is characterized by a high degree of vertical centralization, and representative bodies on the ground have not become the leaders of an effective policy in the interests of mankind and the protection of the urgent needs of territorial communities. One of the main reasons for the low efficiency of local self-government activities is the lack of budget financing and the lack of a mechanism for transferring financial resources to the level of territorial communities.

### ***The aim of the study.***

Analyze the current situation regarding the formation of territorial communities in conditions of decentralization.

To substantiate the main tasks and directions for strengthening the role of land resources management by newly formed communities.

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

In the conditions of decentralization of power for Ukraine it is important to realize the key resource elements of the development of territorial communities. The goal of a voluntary association is to create capable communities that can ensure their development and take full responsibility for solving local problems. To do this, they must be formed according to the government methodology, to meet prospective plans for the formation of communities in the region. Only in this case, the law guarantees them the appropriate powers, and under them - financial and other resources.

The newly formed communities has a difficult situation in the use of land and other natural resources, first of all through [7]:

- underestimation of complexity and specificity of land reforms in the course of land and economic reforms in Ukraine;
- almost complete lack of information on land rights and other natural resources, their potential, state of use and protection in the territorial community;
- unsystematic and incompetent solutions to the tasks of land reform in the territories of local councils, in particular the removal of territorial communities from the disposal of land in their territory, the incompleteness of land reform and land use systems, especially in agriculture;
- unsatisfactory legislative and informational support and protection of property rights of rural residents to land and other natural resources;

- ignoring the problems of introducing into the economic turnover of land as a capital, a resource-integrated approach to the development of rural territories in the process of transformation of land relations, the lack of a balanced state land policy regarding the planning of land use development and land management by territorial communities, mechanisms for its implementation;

- lack of consistent state policy on integrated land law development, holding and financing of state and municipal land management and land cadastre, formation of investment-attractive land use;

- extremely weak informational infrastructure of the land market and the lack of a well-balanced state policy for the formation and development of the land market for non-agricultural and agricultural purposes;

- lack of information provision of the rural population on the possibilities of using land and other natural resources in their territories in market conditions.

That is why the character and model of the spatial development of the combined territories, is determined by the main subjects of this development and the type of relations between them, which is determined by the goals. However, as noted in the Concept of Reforming Local Self-Government and Territorial Organization of Power in Ukraine, the system of local self-government does not currently meet the needs of society.

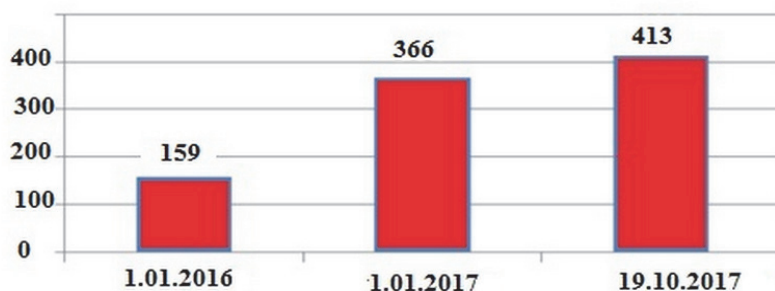
The functioning of local self-government in most of the territorial communities does not ensure the creation and maintenance of a favorable living environment necessary for the full development of a person, its self-realization, the protection of its rights, providing local governments, with organizations created by them, high-quality and accessible administrative, social and other services on the respective territories [5].

Today, the issue of land relations is controlled by local self-government only within settlements, which is only about 4% of Ukraine's territory. This system needs to be changed by transferring the bulk of land resources to the local governments, able territorial communities and giving over the rest to the state. The role of the state, first of all, will be to ensure control over the rational use of land resources [3].

To date, it is impossible to ensure the stable and effective development of territorial communities without giving them the opportunity to independently dispose of land resources [6]. Decentralization of land relations involves the transfer of the right to dispose of lands to communities, ownership of land will be transferred to united communities, the State Geocadaster will exercise only control over the use of land. Newly formed united communities should have economic resources for their effective development. In addition to budget and tax opportunities, the state transfers land resources to these communities[8].

As of the beginning of 2017, there were 366 united territorial communities in Ukraine that united 1740 local councils, in which the first local elections were held. These communities in 2017 switched to direct intergovernmental relations with the State Budget of Ukraine [9].

In 2017, following the adoption of a number of laws that resolved the problem issues of the association, the process of formation of united territorial communities received a new impetus to intensification. On April 30, 2017, the first local elections took place in 47 other united territorial communities. Thus, as of the end of October 2017, 413 united territorial communities were formed in Ukraine that united 5258 settlements, and in which the first elections of local self-governments took place.



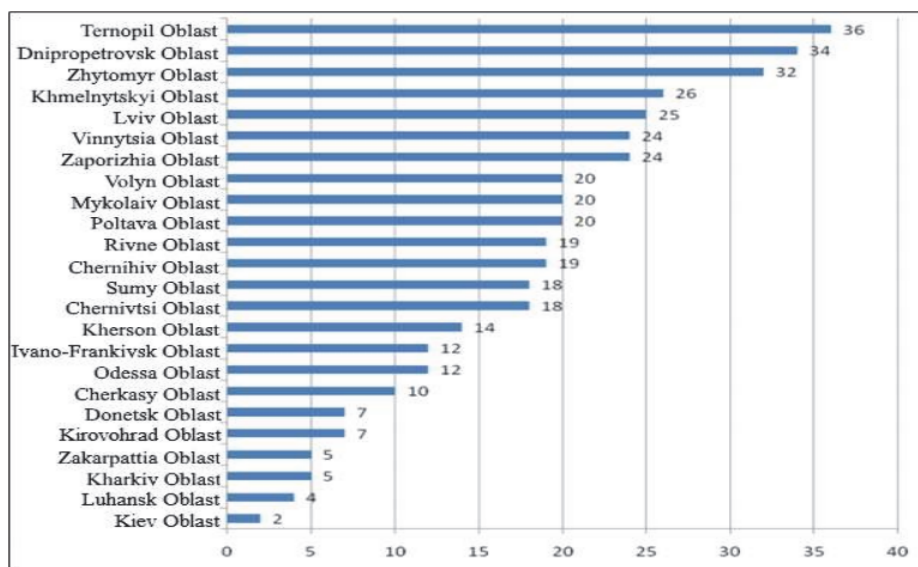
**Pic. 1. The number of united territorial communities in the period from 2016 to 2017**

According to the research and analysis of Pic. 2, it can be concluded that the decentralization of power and the creation of united territorial communities (UTCs) in the Kyiv region is most volatile.

Since the adoption of the Law on voluntary association of communities in the Kyiv region, the process has been artificially restrained by political instruments.

In 2 years only 2 united territorial communities were formed – Kalityans'ka and Piskovs'ka.

More and more communities are willing to unite in order to have opportunities, prospects for development. But in many cases, it is not immediately possible to agree on the unification of efforts with all the neighboring communities for one or another reason. As a result, associations do not take place on a promising plan, and therefore communities will not receive the resources and powers that they have been counting on.



**Pic.2. The number of united territorial communities by regions in October 2017**



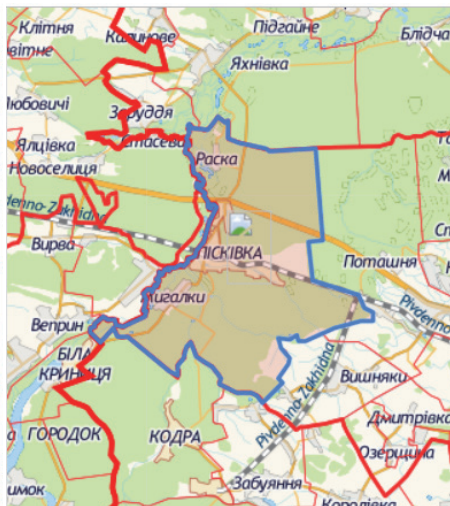
**Pic. 3. Borders of Kalityans'ka UTC**

A new vision requires new approaches, namely the application of the mechanism of development of land resources management of the combined territorial communities as the basic basis for the spatial development of their territories. This involves identifying and specifying a set of tools and methods for implementing measures aimed at rational land use and protection of natural resources [2]. The development of this mechanism is a priority task and a basis for further actions in the direction of preservation and reproduction of land resources.

### ***Results of the research and their discussion.***

In our view, the mechanism for managing land resources, in the formation of territorial communities, should consist of economic, environmental and social factors.

This drawing gives an opportunity to determine the structure of the mechanism aimed at increasing investment

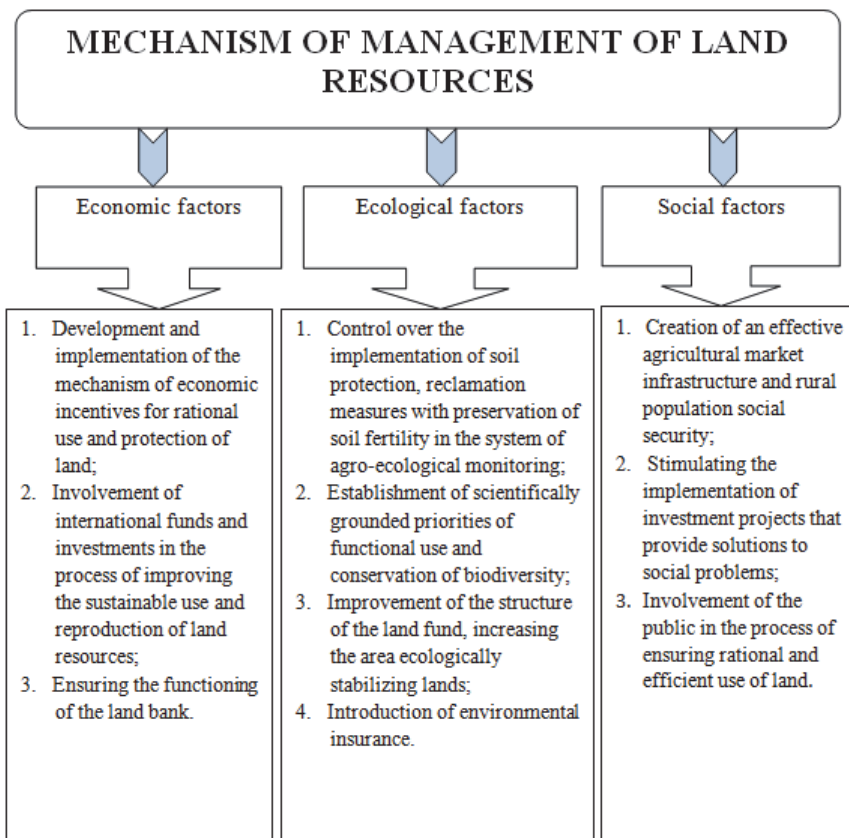


**Pic. 4. Borders of Piskiv'ska UTC**

attractiveness and efficiency of land use. The proposed structural scheme is not exhaustive, but insists on the need to define conceptual approaches to the formation and implementation of fundamental transformations to complete the land reform in Ukraine.

### ***Conclusions.***

Thus, in order to achieve effective land management of territorial communities, in a decentralized environment, it is necessary to improve the system of distribution of powers of state authorities, search for ways to combine interactions of power and business in the newest economic conditions. In the newest economic conditions, the development of territorial management is no longer limited to two coordinates, but is considered in three-dimensional space, where development is the development of a sequence of events in most cases and decisions that are considered in a combination of economic, environmental and social components.



Source: Developed by authors

**Pic.5. Mechanism of Land Resources Management in the Formation of Territorial Communities**

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**ПРОБЛЕМАТИКА УПРАВЛІННЯ ЗЕМЕЛЬНИМИ РЕСУРСАМИ ПРИ ФОРМУ-**

**ВАННІ ТЕРИТОРІАЛЬНИХ ГРОМАД В УМОВАХ ДЕЦЕНТРАЛІЗАЦІЇ ВЛАДИ**

Одним із основних завдань реформи децентралізації є посилення ролі територіальних громад із наданням їм права самим розпоряджатися землями, котрі перебувають як у межах населених пунктів, так і поза ними. У статті досліджено тенденції розвитку децентралізації влади у Київській області.

**Ключові слова:** Децентралізація влади, управління земельними ресурсами, об'єднана територіальна громада, проблематика сучасного землекористування.

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Комарова Н.В.**

**ПРОБЛЕМАТИКА УПРАВЛЕНИЯ ЗЕМЕЛЬНЫМИ РЕСУРСАМИ ПРИ ФОРМИРОВАНИИ ТЕРРИТОРИАЛЬНЫХ ОБЩИН В УСЛОВИЯХ ДЕЦЕНТРАЛИЗАЦИИ ВЛАСТИ**

Одной из основных задач реформы децентрализации является усиление роли территориальных общин с предоставлением им права самим распоряжаться землями, которые находятся как в пределах населенных пунктов, так и вне их. В статье исследованы тенденции развития децентрализации власти в Киевской области.

**Ключевые слова:** Децентрализация власти, управления земельными ресурсами, объединенная территориальная община, проблематика современного землепользования.



# ЕКОНОМІКА ТА ЕКОЛОГІЯ ЗЕМЛЕКОРИСТУВАННЯ

UDC 332.32

## 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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**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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**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.
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## ECOLOGICAL BASES OF FORMATION OF THE LAND USE OF THE TERRITORIES OF THE NATURAL RESERVOIR FUND IN THE COMPOSITION OF ECOLOGICAL NETWORK OF UKRAINE

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*The article highlights ecological and economic measures on the formation of land use territories of the nature reserve fund within the ecological network of Ukraine, its current state and problems, as well as directions of improvement. These measures are directed towards the balanced provision of the needs of the population and sectors of the economy with land resources, rational use and protection of lands, preservation of landscape and biodiversity, creation of environmentally safe living conditions of the population and economic activity and protection of land from depletion, degradation and pollution.*

**Key words.** Ecological network, landscape, natural reserve fund, sustainable land use, biota.

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

At the current level of development of science and technology, human society is a huge consumer of natural resources: not only minerals, but also wildlife. In addition, it uses natural landscapes for recreational and aesthetic purposes. Therefore, preservation and careful attitude to nature becomes the number one challenge for all countries, especially for Ukraine, which has truly great natural wealth. One of the main steps in solving this problem is the formation of natural land use by creating

especially protected natural territories, which not only contribute to the protection and restoration of valuable and unique natural objects and sites, but also to the ecological education of people, which is important. In solving this problem, since the attitude to the nature of each person affects the attitude of the whole of society to it. In connection with all of the foregoing, the ecological principles of land use formation in the territories of the nature reserve fund within the ecological network of Ukraine in the context of the formation of environmental land use is very relevant.

### ***Analysis of recent research and publications.***

In Ukraine, a large number of scholars engaged in the study of this problem. First of all, it is a study of such scientists as L.YA. Novakovs'kyi, D.S.Dobryak, I.A. Rozumnyy, A.M. Tretyak, V.M. Tretyak, A.YA.Sokhnych, O.P. Kanash A.D Yurchenko V.O.Leonets and others. However, a number of issues still remain insufficiently highlighted and require further elaboration.

### ***The purpose of the article.***

Investigation of ecological bases of formation of land use territories of the nature reserve fund within the ecological network of Ukraine.

### ***Presentation of the main research material.***

The process of creating an ecological network at the local level is proposed through the development of land management projects for the development of land use ecosystems of the territories of rural, town and city councils. The first stage in the formation of the land use of the ecological network is the analysis and evaluation of the specifics of land use of the components of the ecological network within the administrative formations in a number of positions. Virtually every administrative entity from the point of view of the natural structure as a unit, one way or another, is artificial. Administrative formations, as a rule, do not coincide with the natural boundaries, therefore neither floral nor blue-dynamic criteria, in spite of their naturalness and unconditional necessity, are not sufficient. Therefore, the formation of land use, especially agricultural

and environmental, must be carried out taking into account landscape criteria. They are crucial for a comprehensive analysis of the natural conditions of administrative formations and take into account both a set of physical and geographical information on land use and data on anthropogenic transformation of their land and other natural resources.

The landscape criteria are closely correlated with the biological ones, which are essential for the selection of land included in the ecological network. Of particular importance is the close connection between the indicators of biodiversity and the characteristics of the spatial structure of the landscape, which refers to the quantitative ratio and spatial distribution of various elements of the landscape. It is desirable to carry out analysis of land use within the administrative-territorial units using cartographic and other materials on land management. This allows to distinguish the landscape elements of different groups according to the degree of landscape changes. Such a network of landscape formations should be considered as the territory of the structural element of the econet of a local scale. Structural elements of the formation of the land use of the ecological network, including the nature reserve fund, are determined by objectively determined natural factors, spatial parameters of ecosystems and other types of territorial entities, in accordance with the principles we have established (Table 1).

Thus, the structural elements of the formation of land use territories of the natural reserve fund as an integral part of the ecological network include: land use of the main territories and objects of the natural reserve fund, land use of the buffer territory, land use of the restored territory. In their unified unity, they form the land use of the ecological

**Table 1. Structural elements of the formation of land use territory of the natural reserve fund as part of the ecological network**

Structural element of land use of the nature reserve fund	Criteria formation of the land-use of the nature reserve fund	Signs
Land use of the main territories and objects of the nature reserve fund	Concentration of ecosystem and landscape diversity	Nuclear element of the nature reserve fund. Land use conservation of ecosystem and landscape diversity, habitats of organisms (ie, the area of important biological and environmental significance) is well integrated in the landscape
Land use of buffer territory	Support for reproduction, exchange of gene pools, migration, maintaining ecological equilibrium, etc.	Protective element Territories surrounding (partially or completely) territories and objects of the nature reserve fund (core) or ecocorridor and provides their protection against external influences
Land use of restored territory	It is determined depending on what functions the land will perform after re-naturalization	Perspective element. The lands are intended for the restoration of the integrity of functional links in the main territories of the nature reserve fund or buffer territory of land use ecocorridors of the ecological network. These may be land with completely or partially degraded soils and other natural elements, which should be the first priority measures to reproduce the original natural state. In the long run, they may be part of other elements of the econet

network, which functionally combines the biodiversity centers into a single regional and national system.

Structural elements of the formation of the land use of the territory of the natural reserve fund as part of the ecological network: the main territories and objects of the nature reserve fund, buffer and recovery territories, in their unity, and create an ecosystem that functionally combines the biodiversity centers into a single national and continental the system.

The criteria for choosing the land use of the main territories and objects of the nature reserve fund are the territories of the greatest concentration of genetic, species, ecosystem and landscape diversity, as well

as habitats of organisms, that is, areas of important biological and ecological importance, are well integrated in the landscape. Their area may vary depending on the area where natural diversity has survived, the spread of rare species or functional relationships with other natural territories, as well as from the territorial level, but not less than 500 hectares.

Land use of the main territories and objects of the nature reserve fund are the nodal elements of the nature reserve fund and include, first of all, the territory of the largest diversity, where different landscapes or their components occur. These are historically formed intersections of natural ways of biota formation.

According to the value of land use, the main territories and objects of the nature reserve fund can be divided into three groups:

1. Areas that are characterized by the diversity or uniqueness of the biota;
2. Territories on which the natural landscapes with a continental, national or regional value are well preserved;
3. Territories that are man-made landscapes, which have a significant natural and historical and cultural value.

The basic criteria for the selection of land use of the main territories and objects of the nature reserve fund are: the degree of naturalness of the territory and its diversity; the wealth of diversity; level value of variety; rareness of diversity; representation of endemic, relic and rare species; representativeness of diversity; typology of variety; completeness of diversity; optimality of the size and naturalness of the borders; the degree of functional significance of the variety; compliance with the complete landscape structure; the presence of anthropogenically altered areas rich in biodiversity; availability of plants and animals specific to traditional agrocenoses; the possibility of integration into the European ecological network.

The first indicators (the degree of naturalness of the territory and its diversity, the level of wealth of diversity, the level of value of diversity, the diversity of diversity) can be estimated on a five-point scale, ranging from indigenous unchanged bio- and ecosystems and landscapes to semi-natural and anthropogenic systems. Rootstocks are of natural origin and adapted to their unchanging habitat, that is, their species and longline structure does not differ substantially from their inherent habitat. The root system has the highest value. Accordingly, these territories are

rich in diversity, which is determined by the unit area for the territory of the landscape area or biogeographic province. The criterion may be a measure of heterogeneity of the area.

When choosing the land use of the main territories and objects of the nature reserve fund, the general state of the natural vegetation and fauna of the region is taken into account. For such regions as, for example, the Steppe zone, where the natural vegetation cover is almost completely destroyed, each part of the vegetation close to the natural one should be included in the ecological network. It is expedient to choose the land use of the main territories and objects of the nature reserve fund taking into account not only the current state of the biota, but also the possibilities for its restoration in the future. For regions in the territory where the natural vegetation is maintained well and is marked by slight fragmentation, for example, in Polesie, only the most valuable plots should be selected as key territories.

First and foremost, include the territories and objects of the nature reserve fund (natural and biosphere reserves, national natural parks, as well as large reserves and protected areas, regional landscape parks, etc.); plots on which plant groups grow, entered in the Green Book of Ukraine; territories that are places of stay or growth of species of flora and fauna included in the Red Data Book of Ukraine. And also the land of the water fund, wetlands, water protection zones; the land of the forest fund (primarily virgin forests and large array of little changed forests); part of the land of health improvement with their natural resources; other natural territories and objects (areas of steppe vegetation, pasture, hayfields, stone outcrops, sands, salt mines, land plots, within



which there are natural objects of special natural value); partly agricultural land of extensive use - pasture, meadows, hayfields, etc. In special cases, land use of the main territories of the nature reserve fund includes radioactive contaminated land that is not used and is subject to special protection as natural regions with a separate status.

The criteria for choosing the land use of the buffer zone are transitional bands between the natural territories and the territories of economic use. The main function of the land use of the buffer territory is to ensure the protection of the territorial elements of the econet from negative anthropogenic impact. They should have an area sufficient to protect the land use of the main territories and objects of the nature reserve fund from the action of external negative factors and optimize certain forms of management in order to preserve existing and restore the lost natural values. The buffer zone may include buffer zones of natural and biosphere reserves and national natural parks as part of land use; part of the land of the water fund and water protection zones; partly the land of the forest fund; other forested territories, including forest strips and other protective shrubs not belonging to the forest fund lands; recreational land, used for mass recreation of the population and tourism and conducting sporting events; partly agricultural land of extensive use - pasture, meadows, hayfields, etc.

The criteria for selecting the land use of the restored territory are created from the components of the ecological network in order to further develop and improve the functioning of the nature reserve fund. The main criteria for choosing the land use of the restored territory is to preserve their habitats, even if natural biodiversity is completely destroyed

(drained peatlands, degraded meadow and steppe natural pastures, liquefied forests, intensive use of agrocentoses), and the real possibility of carrying out renatural measures. Restoration of ecological connections between natural territories can be carried out both natural and artificial ways - landing of forest, erosion of coastal strips along rivers, etc. The land use areas of the restored territory include land, which must play the function of the relationship of biota with the main territories: it has long been plowed, low-yielding; secondarily salted due to excessive irrigation; pasture failures, livestock breeding areas and its permanent concentration; infested with quarantine species of weeds, including harmful to human health; quarries, bream breeds, etc.; arable land on slopes, which are allocated to soil protection strips, or permanent plots intended for the breeding of wild pollinating insects; slopes of landmarks and stripes of alienation along highways, railways, oil and gas pipelines, transmission lines and other communications; areas of open soil on which occur, or elder and slope processes can develop; permanent recreation areas and other recreational areas; areas subject to long-term preservation due to radiation, chemical or other contamination, which poses a threat to the health of people and animals; residential areas to be rehabilitated - farmsteads, abandoned farms, etc.

The main objective of the formation of the national ecological network is to increase the area of natural territories to the level, on the one hand, sufficient to ensure balanced use and reproduction of biotic resources, and on the other - adequate to ecologically safe economic use of land.

The national ecological network has a multi-faceted role - contributes to the preservation of landscape diversity, to

ensure the stability of biocenoses, and provides natural ways of migrations of certain species of plants and animals. Indirectly, the ecological network provides protection of surface and groundwater, creates favorable conditions for the improvement of the population, positively affects the state of the natural resources of agriculture, fish, forestry, protection of settlements and ways of combinations from natural disasters and man-made disasters, reduces the effect of the greenhouse effect on the climate, increases the production of oxygen by plants, reduces dust pollution and contamination of the surface layer of the atmosphere, creates many other effects, useful in the ecological, economic, social bace [3]. Thus, the national ecological network serves as an integral natural resource for multipurpose purposes. It is important to determine the indicators for assigning certain territories to the ecological network to solve administrative problems. Due to the multi-criteria nature of the ecological network assessment, they can be determined depending on approaches to its definition, such as geosystem, ecological, economic, geoplanet, spatial-functional, land management, etc.

The main goal of the formation of the ecological network of Ukraine is the determination of measures to increase the share of the land fund of the country with natural landscapes sufficient to ensure their diversity, close to the natural state of nature, and the formation of their spatial unified territorial system, structured in accordance with the possibility of natural migration and distribution of plant species and animals. At the same time, the national ecological network must meet the requirements for its functioning in the All-Ukrainian and World Ecological Network [2].

In order to assure the authority of various management bodies regarding the formation of the ecological network, it should be divided into territorial elements of national and local significance. Structural elements of the national econet of national importance carry out strategic functions and include structural elements of two main categories - natural regions, in which the existing and future protected nature reserves of the highest level and the natural corridors that perform communication functions are concentrated.

Determination of parameters of specific boundaries of elements of the National Ecological Network is carried out by drawing up appropriate land management projects based on the following mandatory stages (provisions):

1. The objects of the nature reserve fund (regional landscape parks, nature reserves, natural reserves, nature monuments, national natural parks, preserves, botanical gardens, zoological and dendrological parks, parks of landscape garden art), which should become elements and core nuclei of the National Ecological Network of Ukraine (including objects of the natural reserve fund of local importance).

2. The prospects for the development of the natural reserve fund and the location of objects of nature conservation nature are determined.

3. Establish natural regions and natural corridors for the formation of trans-boundary elements of the National Ecological Network of Ukraine.

4. The natural regions and corridors are defined, which serve as the main elements forming the spatial parameters of the national econet.

5. The boundaries of natural regions and parameters of natural corridors and buffer zones are established.

6. A list of valuable natural objects for which installation is required or a special mode of use (forms of use) has already been established.

7. Areas and placements on cartographic materials in the process of land management are determined:

a) territories and objects of the natural reserve fund;

b) water objects, wetlands, coastal strips, territories near the sources of rivers;

c) forests, forest bands, shrubs;

d) natural forage lands - grasslands, pastures;

e) other natural lands - ravines, sands, stony places, dry open lands with a special vegetation cover;

g) radioactive contaminated land not used in agricultural production;

c) degraded and unproductive arable land located in a crisis and pre-crisis condition.

8. The systematization of the existing modes of using the land of these territories is carried out and the development on the basis of them in the process of land management of restrictions and encumbrances (servitudes) is carried out.

9. The list of zones of special regime of land use is being compiled, description of land use regulations according to authorized uses; as well as by types of restrictions on the use of lands that require special approval, etc. in the land management process.

10. The development of the manipulation and manipulation for recording the allocated areas of territorial environmental restrictions and establishing land management and urban planning regulations, restrictions and encumbrances (including entry in the state register of restrictions and encumbrances) is being developed.

11. Land management operations are carried out to determine or, if necessary, establish in-kind boundaries of land plots of the ecological network components in the form of development and approval of land-use documentation.

12. An ecological and economic assessment of the territories and land plots of the ecological network elements is carried out.

13. The development of a system of economic sanctions for failure to comply with established land management or urban planning regulations and procedures for recovering damages.

14. Data is submitted on the right status and restrictions on the use of lands of certain elements of the ecological network in the state land cadastre.

## Conclusions

Design of structural elements of the Ukrainian ecological network at the local level should be carried out in land management projects and include: a) the identification of territories with special environmental, ecological, recreational, historical and cultural value, the establishment of restrictions stipulated by law in the use of land and other natural resources; b) substantiation of the need to include the borders of renewable, buffer and connecting territories and ensure the formation of the ecological network as the only spatial ecological system.

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**ЕКОЛОГІЧНІ ЗАСАДИ ФОРМУВАННЯ  
ЗЕМЛЕКОРИСТУВАННЯ ТЕРИТОРІЙ  
ПРИРОДНО-ЗАПОВІДНОГО ФОНДУ В  
СКЛАДІ ЕКОЛОГІЧНОЇ МЕРЕЖІ УКРАЇНИ**

Висвітлено еколого-економічні заходи щодо формування землекористування територій природно-заповідного фонду в складі екологічної мережі України, його сучасний стан і проблеми, а також напрями вдосконалення. Ці заходи направлені на збалансоване забезпечення потреб населення і галузей економіки земельними ресурсами, раціональне використання та охорону зе-

мель, збереження ландшафтного та біологічного різноманіття, створення екологічно безпечних умов проживання населення й господарської діяльності та захист земель від виснаження, деградації і забруднення.

*Ключові слова:* екологічна мережа, ландшафт, природно-заповідний фонд, стале землекористування, біоти.

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**ЭКОЛОГИЧЕСКИЕ ОСНОВЫ  
ФОРМИРОВАНИЯ ЗЕМЛЕПОЛЬЗОВАНИЯ  
ТЕРРИТОРИЙ ПРИРОДНО-ЗАПОВЕДНОГО  
ФОНДА В СОСТАВЕ ЭКОЛОГИЧЕСКОЙ  
СЕТИ УКРАИНЫ**

Освещены эколого-экономические мероприятия по формированию землепользования территорий природно-заповедного фонда в составе экологической сети Украины, его современное состояние и проблемы, а также направления совершенствования. Эти меры направлены на сбалансированное обеспечение потребностей населения и отраслей экономики земельными ресурсами, рациональное использование и охрану земель, сохранения ландшафтного и биологического разнообразия, создание экологически безопасных условий проживания населения и хозяйственной деятельности и защиты земель от истощения, деградации и загрязнения.

*Ключевые слова:* экологическая сеть, ландшафт, природно-заповедный фонд, устойчивое землепользование, биоты.

## ORGANIZATIONAL AND ECONOMIC MECHANISM ON THE SUSTAINABLE USE STIMULATION OF AGRICULTURAL APPOINTMENT LAND

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*It is well-known that the use of incentives should lead to an improvement of the existing economic, environmental and social status, to raising the level of economic indicators for the benefit of the person who provides incentives and who is the object of stimulation. The current socio-economic conditions dictate the need to find effective forms of land management and rational land use management, correcting mistakes and resolving existing issues. This is possible only after all agricultural land use is fully provided with the necessary land management works. These issues can be solved by implementing the planning documents for the development of territories (national, regional, local, etc.). They put in place an algorithm of action to address the issue, but the greatest advantage of the proposed development program is the possibility of developing a land management process on agricultural lands. Clear financing of development programs, allows to ensure the implementation of the outlined plans for the implementation of land management works that are necessary on agricultural land. But in the context of the limited economic opportunities of Ukraine, the financing of land management measures provided for by the program should be only partially depending on the possibilities and level of environmental issues of land use.*

**Keywords.** *Agricultural appointment land, sustainable use, stimulation, land management mechanism, development program, land management.*

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

Agricultural appointment lands in Ukraine and in the world become more and more valuable every year. Undoubtedly, the reason for this is an increase in the food needs of mankind. At the same time, the use of rural lands in Ukraine occurs in violation of the ma-

jority of scientifically grounded norms and neglect of legislative acts. A wide range of proposals and recommendations are presented to ensure sustainable use of agricultural land by modern science, most of them focus on the use of components that are offered by modern land management. In spite of this, there is still no effective incentive for

landowners and land users to scientifically grounded land use by methods that include land-use mechanisms.

### ***The purpose of this article.***

The aim of the study is to improve the existing mechanism for the promotion of sustainable use of agricultural land. In accordance with the stated goal, the article supposes to solve the following tasks: to identify the main components of modern incentives for sustainable use of land, to identify the main causes of low level land management of land resources, to propose an algorithm that can stimulate rational land use with the use of land management tools.

### ***Analysis of recent research and publications.***

Works by D.I. Babmindra, V.M. Budziak, O.S. Budziak, H.D. Hut-suliak, D.S.Dobriak, A.H.Martyn, A.Ia. Sokhnych, M.H. Stupen, N.Ie. Stoiko, A.M. Tretiak, V.M. Tretiak etc devoted to the study of sustainable use of agricultural lands. Issues of stimulating the development of the land management process as a pledge of sustainable use of agricultural land use were solved by such scholars as A.V. Barvinskyi, D.S. Dobriak, O.S. Dorosh, Y.M. Dorosh, T.O. Yevsiukov, A.H. Martyn, M.P. Stetsiuk, A.M.Tretiak, R.V. Tykhenko, A.M. Shvorak etc. However, current realities require the continuation of the search for additional elements for the mechanism of stimulation of sustainable use of agricultural land, which will enable the development of land management process, which in modern economic and organizational conditions, needs state support and scientific improvement.

### ***Materials and methods of research.***

In the process of research, the following methods were used: monographic (analysis of scientific works on the issue under study), system-structural and comparative analyzes (study of theoretical aspects concerning the application and use of tools for the promotion of the organization and protection of agricultural land); dialectical (the current state of the research issue and proposals for its further development), computational and constructive (research and analysis of the features of stimulation of sustainable use of agricultural land), abstract-logical (theoretical generalizations and formulation of conclusions), etc.

### ***Results of the research and their discussion.***

In the conditions of private ownership of land, state policy in the field of land protection should aim at combining environmental, private and public values on the basis of the approach of encouraging land owners and land users to adopt balanced solutions in the field of land use, which needs to improve the legal regulation of the protection of private lands, the development of voluntary economic methods of land conservation, the regulation of practices, methods and technologies of environmentally sound management [1]. Therefore, in order to ensure that land use is carried out in modern socio-economic realities, the landowner or land user must create conditions in which one will be obliged and able to carry out all necessary land management and other measures for the implementation of rational land use.

In the general sense, the promotion of rational land use is associated with

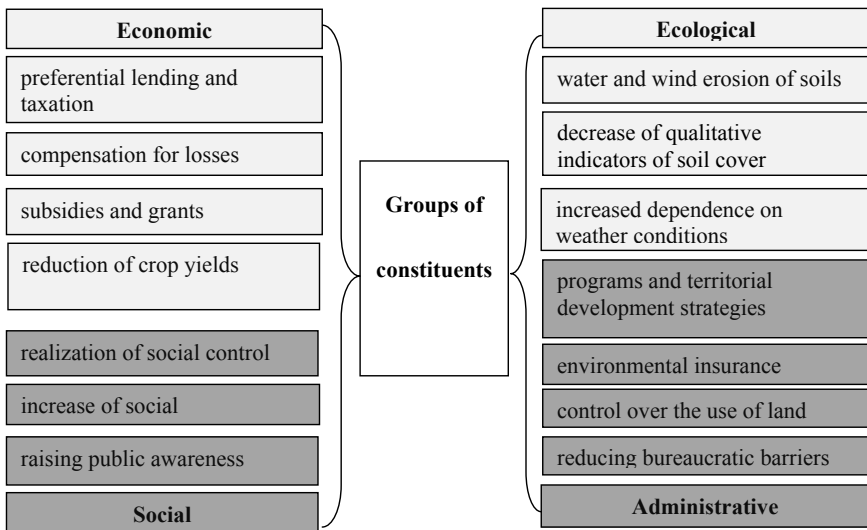


material rewards or sanctions. Since the challenge of sustainable use of agricultural land in Ukraine has long existed, there is, accordingly, a fairly wide range of means of stimulating rational land use for today. We have completed an analysis of the existing scientific and legislative support of the issue of stimulation of sustainable land use, as a result, the components that should be included in the mechanism of stimulation of sustainable use of agricultural land are identified (Figure 1). So as pictured on fig. 1, the implementation of sustainable land use requires the work of economic, environmental, administrative and social groups, which are divided into a significant number of components.

From the components of the incentive mechanism for the sustainable use of agricultural land, we focus on the programs and strategies for the development of territories. Under the current conditions, it is the most effective component for stimulating land man-

agement of the organization and land protection. Since the implementation of such work requires significant sources of funding, the overcoming of a large number of bureaucratic barriers [2], the most effective development program can be a key element in promoting sustainable use of agricultural land. After all, the search for sources of funding is one of the main deterrent factors in the development of land management process on agricultural lands.

Territorial development programs and strategies, public attention, social consciousness and the reduction of bureaucratic barriers are components that, as a rule, were not entrusted with the task of ensuring the sustainable use of agricultural land, these issues were addressed through a variety of economic instruments. These include: preferential crediting and taxation; exemption from payment of taxes for land plots that are in the state of agricultural development and during the improvement of their



**Figure 1 Components of the mechanism on stimulation of agricultural land sustainable use**

condition; compensation of expenses and loss of income through conservation of land; providing state subsidies and subsidies to farms conducting land-based measures; improving the pricing policy for the sale of environmentally friendly products. There are also compulsory levers of influence, which include: payment of land use; additional taxation of the use of environmentally hazardous means and measures; charges for environmental pollution, including deterioration of soil quality, penalties for violation of the principles of environmentally-safe land use; redemption of the right to pollution (environmental license) and environmental insurance. All these levers have certain results, but their impact is too small to talk about sustainable land use [2].

To correct ecological, economic and public mistakes in using land resources and to create conditions for application of land management tools can be by creating a corresponding program for the development of the region. The main priorities that should include such a program should be:

- consideration of agro-climatic, organizational and social peculiarities;
- increase of social role and consciousness;
- rational financial support of the program;
- application of necessary land management tools.

Let's add that the program of organization and protection of agricultural land should be implemented in stages, providing a logical implementation of all the tasks set before it.

Having analyzed the main planning documents of development in Ukraine, one can note insufficient attention to the issue of sustainable use of agricultural land. In programs and strategies, separate

measures are taken to preserve soil fertility, improve land reclamation systems, etc. The authority to perform these tasks is entrusted to lower-level administration (district, village, settlement councils). But, according to the author, to the lands of agricultural purpose, their state, organization and protection it is necessary to implement a more detailed approach, which should be implemented in a separate program of development. Its realization should be provided by the landowners and land users themselves, under the control and financing of the respective administrations.

Under the current conditions, it is possible to ensure the sustainable use of land resources by implementing a regional program for the development of land-use machinery on agricultural lands. This would be the most effective financial source for landowners and land users when implementing land management documentation, which ensures the rational use and restoration of quality land resources. Currently, the system of regional programs aimed at ensuring sustainable land use is very poorly developed in Ukraine. The last such program, for example, for the Lviv region, was funded and operates in 2012-2016. But it almost ends up and has not been fully realized.

The logical scheme of the stages of the regional program for the development of land management mechanism on agricultural lands is depicted in Fig. 2. As can be seen from Fig. 2, the program for the development of a land management mechanism on agricultural lands consists of three phases and two tasks that need to be implemented during the entire program period. One aspect of the program is to increase the role of society, the rural population must increase knowledge about sustainable land use

and become the main driver of its development. Increasing public attention to the sustainable use of agricultural land, may be part of a group of stimulating levers of influence on agrarian formation. Territorial bodies of land resources need to continue to provide explanatory and informative work on the appropriateness of the use of land management tools, but it is necessary to handle it not only with the heads of agribusiness, but also with simple peasants – owners of land shares (units).

Since the vast majority of owners of land shares (shares) are elderly people living in rural areas, in order to ensure the maximum population appearance, such meetings should take place only on the territories of the respective village (town councils) by the previous announcement and personal invitation. Society should clearly understand how and for what purpose it is necessary to ensure sustainable land use and stop degradation processes on agricultural lands.

In order to realize the objectives of the program, the regional departments of the State Geocadaster should create schedules for the implementation of meetings, consultations with owners and users of land plots. It is necessary to introduce the practice of broadcasting television programs that would teach and help ordinary citizens to ensure the most rational use of their property, as well as the dissemination of articles with such content in local newspapers.

Another task in a program that requires a permanent solution – consolidation of land. Of course, in order to launch a full process of consolidation of land, a full-fledged agricultural land is needed, but, unfortunately, today no relevant law has been adopted. According to experts, the consolidation of agricultural lands on the basis of the lease is

not an ideal solution, since the landlord is mostly not interested in investing in land that is not in his property and trying to get from it only the maximum profit, therefore, so there are disastrous for the environment conditions [3, p.127].

The proposed program for the development of a land management mechanism on agricultural lands does not provide for a solution to the full implementation of consolidation of land, because this issue is rather large. The issues of fragmentation of land are considered internationally. Their decision is being addressed by Ukrainian and foreign scholars. Therefore, this process needs to be continued by providing it through lease and sublease, actively using information from land management schemes and feasibility studies for the respective territories. It is possible to accelerate this process by means of personal messages from owners of agroformings about the expediency of exchange of land plots.

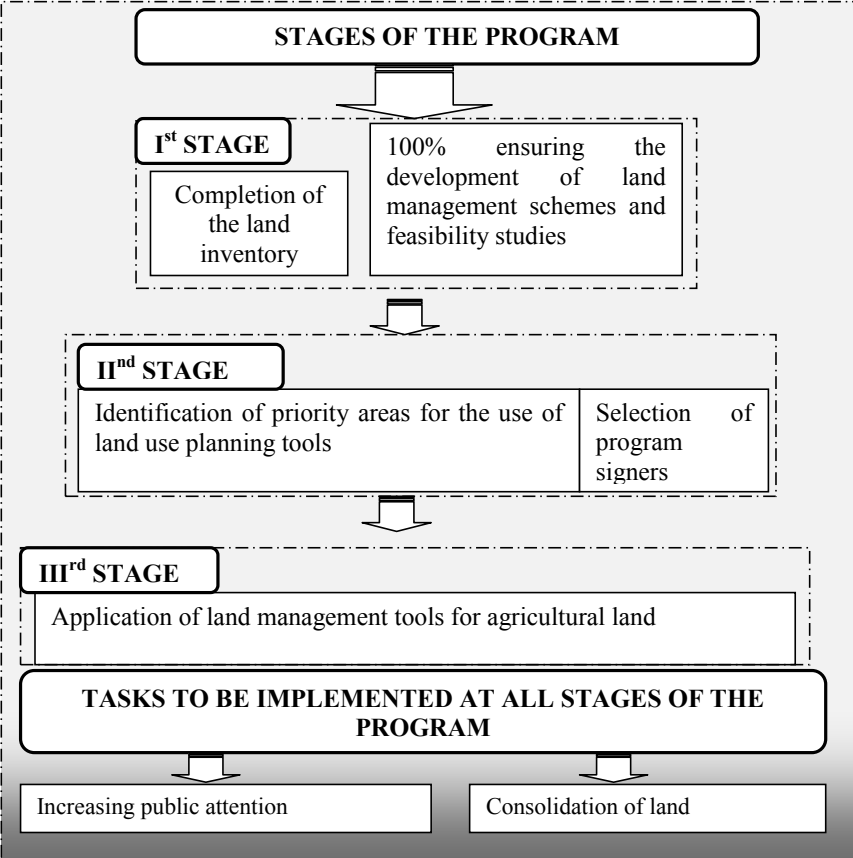
On the basis of the schemes of land management of village and town councils, all types of land management documentation for land tenure and land use should be drawn up. This is especially true of land management projects that provide ecological and economic justification of crop rotation and land management as an instrument of organization and protection. In most administrative regions of Ukraine, agricultural enterprises occupy a significant part of their territory. For this reason, measures planted in the land management scheme are directly related to the organization of the territory of agricultural enterprises and farms. Therefore, the priority task of the program of development of land management mechanism on agricultural lands is the completion of the development

of land management schemes and feasibility studies for the use and protection of land in all administrative territorial entities. Without this stage, the effectiveness of any design decisions for individual land uses will be questionable and inadequate.

Another of the objectives of the proposed program is to complete the inventory of land. According to the land legislation of Ukraine, inventory of land is carried out with the purpose of setting the location of land, its limits, size, legal status, the identification of unused land, used inappropriately or not for the in-

tended purpose, the installation of quantitative and qualitative characteristics of lands necessary for conducting the state land cadastre and so on [4].

The objectives of the second stage of the program are to identify the priority areas requiring the use of land management tools and the choice of program signers. Identification of priority areas must be carried out only on the basis of a corresponding land management scheme. The local department of the State Geocadaster, which is responsible for implementing the program of development of



**Figure 2. Logical scheme of stages and tasks of the regional program of development of land management mechanism on agricultural lands**

Table 1. Scale of financing of works on land management of agricultural land %

Land area thousand hectares		Ecological-agrochemical score																			
		10	20	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
5	100,0	97,5	95,0	92,5	90,0	87,5	85,0	82,5	80,0	77,5	75,0	72,5	70,0	67,5	65,0	62,5	60,0	57,5	55,0	52,5	50,0
10	97,5	95,0	92,5	90,0	87,5	85,0	82,5	80,0	77,5	75,0	72,5	70,0	67,5	65,0	62,5	60,0	57,5	55,0	52,5	50,0	47,5
15	95,0	92,5	90,0	87,5	85,0	82,5	80,0	77,5	75,0	72,5	70,0	67,5	65,0	62,5	60,0	57,5	55,0	52,5	50,0	47,5	45,0
20	92,5	90,0	87,5	85,0	82,5	80,0	77,5	75,0	72,5	70,0	67,5	65,0	62,5	60,0	57,5	55,0	52,5	50,0	47,5	45,0	42,5
25	90,0	87,5	85,0	82,5	80,0	77,5	75,0	72,5	70,0	67,5	65,0	62,5	60,0	57,5	55,0	52,5	50,0	47,5	45,0	42,5	40,0
30	87,5	85,0	82,5	80,0	77,5	75,0	72,5	70,0	67,5	65,0	62,5	60,0	57,5	55,0	52,5	50,0	47,5	45,0	42,5	40,0	37,5
35	85,0	82,5	80,0	77,5	75,0	72,5	70,0	67,5	65,0	62,5	60,0	57,5	55,0	52,5	50,0	47,5	45,0	42,5	40,0	37,5	35,0
40	82,5	80,0	77,5	75,0	72,5	70,0	67,5	65,0	62,5	60,0	57,5	55,0	52,5	50,0	47,5	45,0	42,5	40,0	37,5	35,0	32,5
45	80,0	77,5	75,0	72,5	70,0	67,5	65,0	62,5	60,0	57,5	55,0	52,5	50,0	47,5	45,0	42,5	40,0	37,5	35,0	32,5	30,0
50	77,5	75,0	72,5	70,0	67,5	65,0	62,5	60,0	57,5	55,0	52,5	50,0	47,5	45,0	42,5	40,0	37,5	35,0	32,5	30,0	27,5
55	75,0	72,5	70,0	67,5	65,0	62,5	60,0	57,5	55,0	52,5	50,0	47,5	45,0	42,5	40,0	37,5	35,0	32,5	30,0	27,5	25,0
60	72,5	70,0	67,5	65,0	62,5	60,0	57,5	55,0	52,5	50,0	47,5	45,0	42,5	40,0	37,5	35,0	32,5	30,0	27,5	25,0	22,5
65	70,0	67,5	65,0	62,5	60,0	57,5	55,0	52,5	50,0	47,5	45,0	42,5	40,0	37,5	35,0	32,5	30,0	27,5	25,0	22,5	20,0
70	67,5	65,0	62,5	60,0	57,5	55,0	52,5	50,0	47,5	45,0	42,5	40,0	37,5	35,0	32,5	30,0	27,5	25,0	22,5	20,0	17,5
75	65,0	62,5	60,0	57,5	55,0	52,5	50,0	47,5	45,0	42,5	40,0	37,5	35,0	32,5	30,0	27,5	25,0	22,5	20,0	17,5	15,0
80	62,5	60,0	57,5	55,0	52,5	50,0	47,5	45,0	42,5	40,0	37,5	35,0	32,5	30,0	27,5	25,0	22,5	20,0	17,5	15,0	12,5
85	60,0	57,5	55,0	52,5	50,0	47,5	45,0	42,5	40,0	37,5	35,0	32,5	30,0	27,5	25,0	22,5	20,0	17,5	15,0	12,5	10,0
90	57,5	55,0	52,5	50,0	47,5	45,0	42,5	40,0	37,5	35,0	32,5	30,0	27,5	25,0	22,5	20,0	17,5	15,0	12,5	10,0	7,5
95	55,0	52,5	50,0	47,5	45,0	42,5	40,0	37,5	35,0	32,5	30,0	27,5	25,0	22,5	20,0	17,5	15,0	12,5	10,0	7,5	5,0
100	52,5	50,0	47,5	45,0	42,5	40,0	37,5	35,0	32,5	30,0	27,5	25,0	22,5	20,0	17,5	15,0	12,5	10,0	7,5	5,0	2,5

Source: developed by the auth

land management mechanism on agricultural lands, is engaged in the definition of such territories.

The financial support of the program should be directed primarily to landowners and land users who must directly apply appropriate organization of land protection. But their financial support should be carried out reasonably, in accordance with the peculiarities of both economic management and existing environmental issues of land resources. To do this, it is necessary to develop a certain algorithm for determining the amount of state support.

The choice of program signatories and the percentage of cash aid aimed at applying land use planning tools to agricultural land should be determined individually for each land use. The percentage of financing for work on the organization and protection of land can be determined by the proposed scale, which characterizes the economy in two indicators: ecological-agrochemical score and land use (table 1). The percentage of state financing necessary measures for the funds provided for the implementation of the program of organization and protection of agricultural land, is set according to the range in which certain land use falls.

Realization of any state programs is possible only with sufficient and stable financial support. It is possible to accomplish the task of the proposed program in a few years, and therefore the planning of financing must be carried out in parallel with the compilation of the regional and local budgets for each calendar year. Subventions for the implementation of the program of organization and protection of agricultural land should be taken from local and regional budgets from funds received from the use of land resources. It is also

possible to direct funds for charitable foundations, enterprises, institutions and organizations for the implementation of the land-use machinery development program on agricultural lands, the contributions of individual citizens, funds raised (grants) and other sources not prohibited by law [5].

However, these are not the only sources of funding for the use of instruments of organization and protection of land. Each farm manager can find additional sources of funding for himself, taking into account the peculiarities of his production.

### ***Conclusions.***

As a result of the study, it was determined that timely and scientifically grounded application of land management tools plays a leading role in the way to agricultural use. As a result of the search for the improvement of the stimulation mechanism of sustainable land use, the following components have been identified: territorial development programs and strategies, public attention, social consciousness and reduction of bureaucratic barriers. In connection with this, it is proposed to create regional programs for the development of land-use machinery on agricultural lands in the territory of Ukraine. The program proposes to implement the completion and completion of all necessary land management work with the simultaneous and continuous development of public education and awareness on the rational use of land tenure or land use. The financing of such a program is recommended to be carried out in accordance with the proposed scale of funding for land management of agricultural land. Implementation of land management through territorial development pro-



grams can become an effective set of actions for agricultural land. The effective functioning of such a program will stimulate landowners and land users to ensure the sustainable use of agricultural land. Real and effective work of such a program is possible with detailed scientific substantiation, economic calculations, determination of responsible persons for its realization and execution. Therefore, the research proposed by us contains significant prospects for the development of which will ensure sustainable land use.

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**Атаманюк О.П., Грещук Г.І.**

### **ОРГАНІЗАЦІЙНО-ЕКОНОМІЧНИЙ МЕХАНІЗМ СТИМУЛЮВАННЯ СТАЛОГО ВИКОРИСТАННЯ ЗЕМЕЛЬ СІЛЬСЬКОГОСПОДАРСЬКОГО ПРИЗНАЧЕННЯ**

Удосконалено існуючий механізм стимулювання сталого використання земель сільськогосподарського призначення. Визначено головні складові сучасного стимулювання до сталого використання земель, запропоновано алгоритм, який зможе стимулювати раціональне землекористування з застосуванням землепорядних інструментів.

**Ключові слова:** землі сільськогосподарського призначення, стале використання, стимулювання, землепорядний механізм, програма розвитку, землепорядкування.

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### **ОРГАНИЗАЦИОННО-ЭКОНОМИЧЕСКИЙ МЕХАНИЗМ СТИМУЛИРОВАНИЯ УСТОЙЧИВОГО ИСПОЛЬЗОВАНИЯ ЗЕМЕЛЬ СЕЛЬСКОХОЗЯЙСТВЕННОГО НАЗНАЧЕНИЯ**

Усовершенствован существующий механизм стимулирования устойчивого использования земель сельскохозяйственного назначения. Определены главные составляющие современного стимулирования к устойчивому использованию земель, предложен алгоритм, который сможет стимулировать рациональное землепользование с применением землеустроительных инструментов.

**Ключевые слова:** земли сельскохозяйственного назначения, устойчивое использование, стимулирование, землеустроительный механизм, программа развития, землеустройство.

## FORMATION OF LAND FOR COMMERCIAL USES

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*The article analyzes the formation of land plots as the objects of the commercial use. It is established that the greatest value in the profitability of objects of commercial purpose is their placement and how correctly will be organized the using of the land plot for commercial purpose, especially in large cities.*

**Ключові слова:** commercial purpose, land, land management projects, regulation mechanism, allocation procedure.

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

The earth is a key element of national wealth, the main means of production, and an indispensable condition for the existence of human society.

The land mechanization system, which, in Article 52 of the Law of Ukraine «About Land Management», provides for the development of Land Management Projects for the allocation of land plots, in particular, for the formation of land plots for commercial purposes, is a real mechanism for settling the order in urban land use, use and protection of land. [1, p. 1]

Land plots are taken in accordance with land management projects regarding the allocation of land plots and technical documentation on land management regarding the establishment of

boundaries of the land plot in kind (on the ground) or part thereof; technical documentation on land management for division or association of land plots. Such projects are being developed in the course of the formation of a new land plot in the case of provision, transfer of land, seizure (redemption), alienation of a land plot (its part), the boundaries of which are not established in kind (except for the division and association of land) or when changing the intended purpose land plot in accordance with the law. [1, pp. 3-4] Land management projects for the allocation of land provide justification of the territory on which commercial objects will be located, as well as contain comprehensive recommendations not only for the rational use and protection of land plots, but also for the improvement and development of social infrastructure

big cities Under the influence of the general development of social production there are changes in land relations, which make adjustments to the existing system of organization of land use.

The land system functions as a system of state measures for the implementation of land legislation aimed at the organization of the full and rational use of land, as well as means of production, inextricably linked with the land, in order to increase the efficiency of social production.

### ***Analysis of recent research and publications.***

The research works of domestic scientists engaged in the study of issues of landing and forming land plots of various functional purposes: D. Babmindra, Z. Brindza, V. Gorlachuk, D. Dobriak, P. Kazmir, M. Kalinchik, O. Kanash, V. Krivov, A. Martin, L. Novakovsky, O. Panchuk, A. Tretyak, M. Khvesik and others.

But scientific works do not always focus on the formation of land as the objects of the commercial purpose.

**The purpose of the study** is to justify the formation of land plots for commercial purposes.

### ***Results and discussion.***

The use of land plot allocated for the purpose of placing commercial objects involves the use of a land plot within the category of land for residential and community development. However, the construction of such facilities must be consistent with urban planning documentation and documentation on land management, which involves changing the type of intended use of land.

According to the requirements of Part 5 of Art. 20 of the Land Code of

Ukraine, types of land use within a certain category of land are determined by its owner or user independently within the requirements established by law for the use of land of this category, taking into account urban planning documentation and documentation of land management. [2, p. 7]

The market for commercial real estate began to emerge only with the deployment of privatization of enterprises. The market for commercial objects is much smaller than residential, so operations on it are less, although commercial objects worldwide are considered to be the most attractive.

Commercial real estate can be divided into those that bring income - commercial and those that create the conditions for its receipt - industrial (industrial). Income-generating objects include: shops and shopping complexes; hotels and entertainment centers, offices, garages, etc. Real estate objects that create the conditions for profit are warehouse and logistic complexes, industrial objects, industrial parks, etc. [5, p. 36]

Today, trade and catering are an intensively developing economy. The objects of this sphere were first privatized and privatized, which stimulated their active development. Stores create consumer sympathies, as they provide the necessary service and culture of service.

As the experience of large European cities has shown, the location of multi-functional shopping centers is the intersection of major motorways, in cities - the proximity of metro stations and ground transport stops. Mostly, such centers are located in «sleeping areas» or outside the city, in fact, in the empty land, near the main highway. [4, p. 146]

In the modern economy, the processes of the emergence of new and modernization of old shopping centers are

heterogeneous, since the regions are in different economic conditions and develop, according to their complex laws. Trade as an economic life is at least as inclined to be exposed to negative economic and political changes, quickly recover from the crisis and depression. The main indicator of the development of the trading sector can be considered the demand that grows on functional shopping areas.

All landlords and land plot owners should ensure the utilization of land plots in accordance with their target values, preventing the collapse of the surrounding area as a result of their administrative activities.

For all developed countries, the ecological situation in the cities - the capitals - is the subject of special attention of the official authorities of all levels, political parties, public movements, the mass media and the general population. [3, p. 67] The city's ecological situation is a mirror that reflects the level of socio-economic status of the country, so it is not by accident that information about the ecological situation in developed countries is publicly available and one of the leading places in the political and public life of society.

With the growth of the city, the development of its industry, the increasingly complex problem of environmental protection, creating the normal conditions for life and human activity. In recent decades, the negative impact of man on the environment and in particular on greenery has intensified. The problem of green massifs (urban parks, squares, landscaping of toches) is one of the most important environmental problems in the city. Vegetation, as a stabilizing system, ensures the comfort of living conditions of people in the village, regulates (in certain limits) the gas composition of the air and the degree

of its pollution, climatic characteristics of urban areas, reduces the influence of noise factors and is a source of aesthetic rest of people.

Consequently, the project of forming a land plot is one of the important stages in the procedure for registration of ownership of a land plot.

The environmental situation in the cities is mainly due to the activity of industrial enterprises and the movement of motor vehicles. In order to minimize the negative impact on the environment created by the industrial complex of cities, the ecology sector conducts appropriate coordination work with enterprises, organizations and institutions, in particular, consultations, methodological clarifications, control over the implementation of relevant environmental programs, measures and implementation of plans for the protection of the environment.

A modern city can not be imagined without transport, but transport, first of all automotive, is one of the largest and most harmful sources of air pollution. Its share accounted for 97 percent of the total mass emissions.

The main issues are:

- High level of emissions into the air by motor transport is caused by rapid increase of motor transport flows, lagging development of the street and road network, poor quality of fuel.

- Use of outdated equipment and technologies, insufficient level of introduction of new environmental technologies at the enterprises of the district.

- Lack of established water protection zones, and within them, coastal protective strips of water objects of the district.

- Constant increase in the volume of solid waste generation, low implementation of separate collection of waste.

- Lack of established boundaries of green zones.

Main goals of ecological development:

- Reducing the negative impact of vehicles on the city.

- Reduction of gross emissions of pollutants into the atmosphere by industrial enterprises.

- Continuation of technical re-equipment of the production complex on the basis of the introduction of scientific achievements, energy and surviving technologies, non-waste and environmentally safe technological processes.

- Consistent growth in the volume of separate collection of solid domestic and industrial waste.

- Preservation of biological and landscape diversity of the region, development of green areas.

- Strengthening educational activities in the field of environmental protection.

Measures aimed at solving the tasks and achievement of the goals: 1. In the field of atmospheric air: carrying out continuous monitoring of the state of atmospheric air and emissions of pollutants by the enterprises of the district; coordination of activities of enterprises on the implementation of environmental protection measures.

2. In the field of water resources protection: coordination of activities of district enterprises with regard to timely cleaning of sewage networks, reduction of water use by increasing the number of water-circulation systems.

3. In the field of waste management: coordination of activities of enterprises of the district, on timely transfer to the disposal of hazardous industrial waste; distribution of the system of primary sorting of waste among enterprises and residents of the city.

## Conclusions.

It was established that the greatest value in the profitability of objects of commercial purpose is their placeplacement and how correctly it will be organized using the land plot for commercial purpose, especially in large cities of the country.

The market for commercial real estate began to emerge only with the deployment of privatization of enterprises. The market for commercial objects is much smaller than residential, so operations on it are less, although commercial objects worldwide are considered to be the most attractive.

Today, trade and catering are an intensively developing economy. The objects of this sphere were first privatized and privatized, which stimulated their active development. Stores create consumer sympathies, as they provide the necessary service and culture of service.

As the experience of large European cities has shown, the location of multi-functional shopping centers is the intersection of major motorways, in cities - the proximity of metro stations and ground transport stops. Mostly, such centers are located in «sleeping areas» or outside the city, in fact, in the empty land, near the main highway.

It has been established that for all developed countries, the ecological situation in the cities - the capitals - is the subject of special attention of the official authorities of all levels, political parties, public movements, the mass media and the general population. The ecological situation of the city is a mirror that reflects the level of the socio-economic situation of the country, so it is no accident that information about the ecological situation in developed countries is publicly available and one of the leading places in the political and public life of society.

With the growth of the city, the development of its industry, the increasingly complex problem of environmental protection, creating the normal conditions for life and human activity.

The following measures have been proposed to improve the ecological situation on the territory of the research object: conduct of continuous monitoring of the atmospheric air and emissions of pollutants by the enterprises of Solomyansky district; coordination of activity of enterprises on implementation of nature-protective measures; coordination of activities of the district's enterprises on the timely cleaning of sewage networks, reduction of water use by increasing the number of water-circulation systems; coordination of activity of enterprises of the district, regarding timely transfer of hazardous industrial waste to the disposal; distribution of the system of primary sorting of waste among enterprises and residents of the district; as well as in the near future prospects for improving the adjacent areas along the streets of the district.

The requirements for the land management project concerning the allocation of the land plot were studied, in particular: the initial data for the development of the land management project were obtained in the land resources authorities; the content of the explanatory note (basic information about the land plot, the legal basis for the development of the project, the design decision, the stages of the work, including a description of the cadastral survey); graphic materials of the land management project (The land plot plan should reflect the land plot allocated and the incident situation with the application of existing landowners and land users, as well as description of the subcontractors, explanation for statistical reporting, symbols,

a stamp indicating the location of the land plot, the contractor, signatures manager and responsible for the quality of work, copying from a regular cadastral plan agreed by an official of the territorial body of land resources, a plan for the boundaries and restrictions of easements (subject to restrictions), agreed by the official of the territorial body of land resources, drawing of the transfer of the boundaries of the land plot in kind (on the ground), the cadastral plan of the land plot); materials deduction of areas.

Grounded the formation of land plots for commercial purposes: the location and ownership of the land plot, the intended use and the area planned for the withdrawal have been established; purpose of land use, types and types of restrictions; conditions of withdrawal, form of payment for land; subject of land relations.

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ФОРМУВАННЯ ЗЕМЕЛЬНИХ ДІЛЯНОК  
КОМЕРЦІЙНОГО ВИКОРИСТАННЯ**

У статті проаналізовано формування земельних ділянок під об'єктами комерційного використання. Встановлено, що найбільшу цінність в прибутковості об'єктів комерційного призначення становить їх місце розташування та наскільки правильно буде організовано використання земельної ділянки під об'єктами комерційного призначення, особливо у великих містах.

**Ключові слова:** комерційне призначення, земельна ділянка, проекти землеустрою, механізм регулювання, процедура відведення.

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ФОРМИРОВАНИЕ ЗЕМЕЛЬНЫХ УЧАСТКОВ  
КОММЕРЧЕСКОГО ИСПОЛЬЗОВАНИЯ**

В статье проанализировано формирование земельных участков под объектами коммерческого использования. Установлено, что наибольшую ценность в доходности объектов коммерческого назначения составляет их месторасположение и насколько правильно будет организовано использование земельного участка под объектами коммерческого назначения, особенно в крупных городах.

**Ключевые слова:** коммерческое назначение, земельный участок, проекты землеустройства, механизм регулирования, процедура отвода.

## POPULATION SIZE AS A FACTOR FOR FORMATION OF LAND VALUE IN SETTLEMENTS

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*Paper reflects on the features of the formation of normative monetary evaluation of land in settlements (hereinafter abbreviated as NME).*

*The nature of the formation of the constituent of the regional differential land rent coefficient  $Km_1$  – the coefficient characterizing population size ( $Km_1p$ ). Ukraine settlements classifications scheme suggested, which gives a comprehensive imagination of urban and rural settlements hierarchy in the general resettlement system of the state. Influence of indicators of a population size of different categories on a residence place – the available and permanent population on NME value is analyzed. The desirability of making changes to the Order of normative monetary evaluation of land in settlements has been justified. Specifically, it is proposed to point out that the calculation of NME is based on the account of the constant population size at the beginning of the year for which normative monetary evaluation of land is being performed.*

**Keywords.** Land management, urban development, normative monetary evaluation of land in settlements (NME), population.

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

Urban and land management in Ukraine is intended to ensure sustainable development at national, regional and local levels

The establishment of payment for land is one of the levers of territory rational use. In Ukraine payment for

land established on the land normative monetary evaluation base. Feature of land valuation in Ukraine are different methodological approaches to the assessment of different categories of land. There are the following categories of normative monetary evaluation: monetary evaluation of settlements lands, non-agricultural lands assessment (ex-

cept settlements lands) and agricultural lands assessment. Areas of application of land valuation are regulated by legislative and regulatory documents.

This article is devoted to the issues of normative monetary evaluation of settlements lands (hereinafter abbreviated as NME).

A legislative basis of the NME implementation is set out in article 201 of the Land code of Ukraine, in part XII of the Fiscal code of Ukraine, and in the Law of Ukraine "On land evaluation"; a normative-methodical basis of NME is the Method for monetary evaluation of land in settlements [1] (hereinafter – Method) and the Procedure for normative monetary evaluation of land in settlements [2] (hereinafter – Procedure). The main problem of NME calculation is that since the approval of the Method and Procedure, amendments and additions have been made to them many times, but their essence has not changed since 1995 and does not correspond to reality. Separate indicators of differential land rent formation need to be clarified.

The issues of land evaluation are devoted to such scientific works of Ukrainian and foreign scientists as N. Komova, P. Loiko, V. Kilochko, A. Martin [3 - 6]. Settlements lands normative monetary evaluation features are most broadly highlighted in the works of Y. Dehtiarenko, M. Lykhohrud, Y. Mantsevyich, Y. Palekha [7 - 10]. Yet the issue of the influence of the settlement population size indicators on the land value in these settlements remained unnoticed.

### ***The purpose of this article.***

The aim of this article is to study the features of influence of available and permanent population size on the value of normative monetary evaluation of land in settlements.

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

According to the current methodology, depending on town (city) population, NME differentiates – increases from 1,2 to 3,00 times. [2, Appendix 2].

Population indicators for different categories of place of residence (for permanent and current population) have different meanings [11]. Uncertainty in the issue of establishing a payment for land on the basis of which particular category of the population at the place of residence can input an error in the calculation of the tax. In terms of the number of permanent or current residents of the city can be classified in different categories [2, Appendix 2], which will unjustly change their NME at times! In connection with the above, the research topic of this article is relevant and has practical application.

Normative monetary evaluation of land in settlements (NME), like the evaluation of other land categories is determined on rental basis and represents the capitalized rental income from a land parcel [1, 2, 10]; the calculation procedure is set out in the Method and Procedure [1, 2]. The general value of the land parcel in settlement is formed by the infrastructural and geographic constituents of differential land rent. The geographic constituent reflects on the convenience of location of land parcel, the infrastructural one – its arrangement level [9, 10, 12]. The geographic constituent of differential land rent reflects the formation of lands value in settlements on three levels: regional, intrasettlement and local, and is regulated by the value of Km coefficient [1, 2, 8 - 10]. One of the main factors forming the value of the Km coefficient is the coefficient characterizing the population size, geographical position, admin-

istrative status of the settlement and its economic functions. In scientific work [13], it was suggested to assign this index to the index KM1H, and to describe the methodology for calculating the Km coefficient by the formula.

Let's analyze the essence of the coefficient that characterizes the population – Km1p .

Land normative monetary evaluation size is significantly different in various localities. In the table on the example of average NME indicators below [14] the range of values of monetary estimation for urban settlements of Ukraine is illustrated.

Such a difference in the monetary valuation of land is largely related to the hierarchical distribution of settlements in the general settlement system. The main indicators that characterize the place of a settlement in the settlement system are population size, administrative status, economic functions [8]. These characteristics are used as the basis for the classification of settlements, and in the NME differentiate their monetary value and are regulated by the value of the regional coefficient Km1 [2]. In the article below the scheme of belonging of settlements to different categories of groupings is given, which gives a complex idea of the

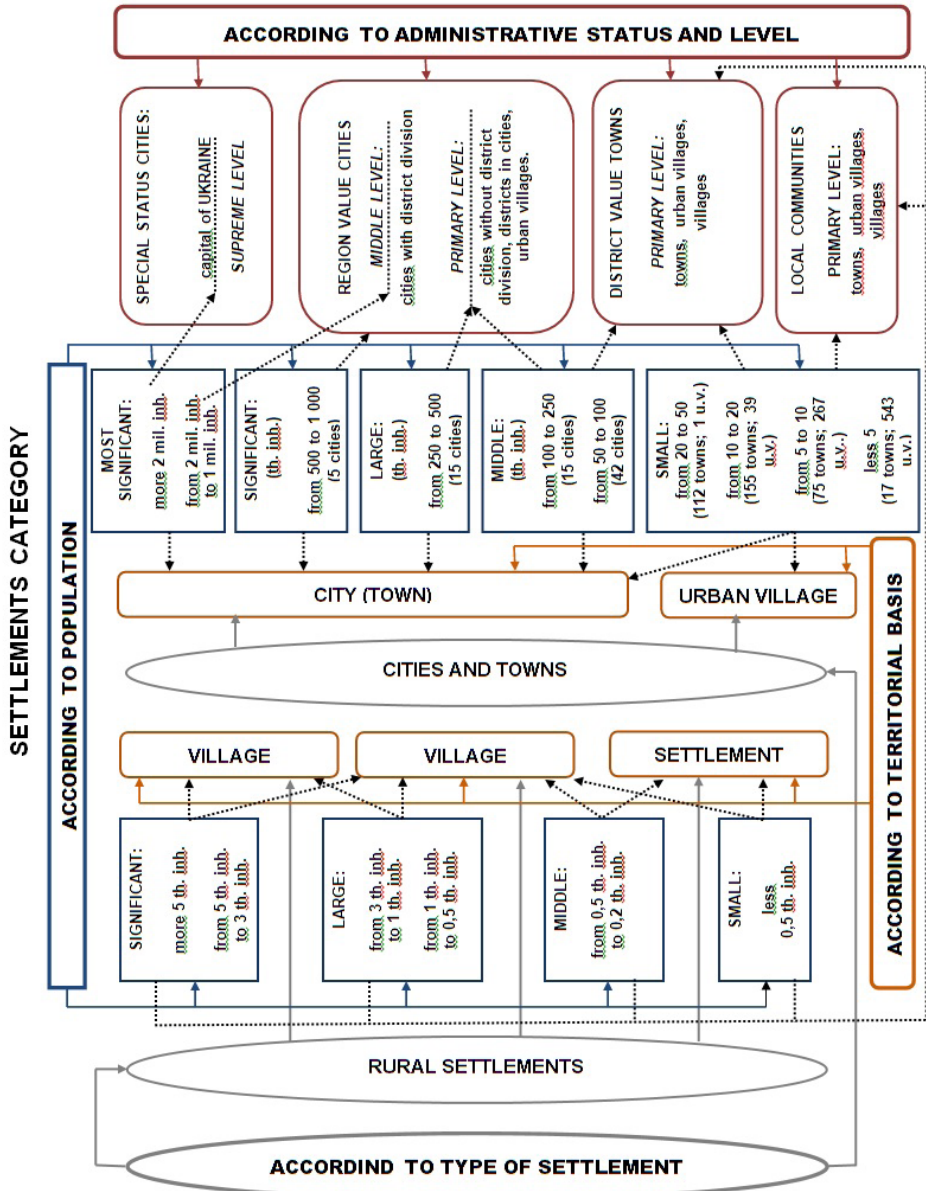
**Tab – Average costs for the area development and accomplishment, UAH/1 m<sup>2</sup>, for Ukrainian settlements [14, p.64] (as of 01.01.2012)**

Groups of settlements with population size (thousand inhabitants)	Urban settlements (cities and towns)	Rural settlements	Average by all settlements
Less 0,2	17,49	7,92	7,92
From 0,2 to 0,5		11,01	11,33
From 0,5 to 1,0	12,83	10,77	11,40
From 1,0 to 5,0	17,39	11,99	13,88
From 5,0 to 10,0	21,51	14,46	18,34
From 10,0 to 20,0	25,15	11,96	21,19
From 20,0 to 50,0	32,45	–	32,45
From 50,0 to 100,0	33,83	–	33,83
From 100,0 to 250,0	38,87	–	38,87
From 250,0 to 500,0	44,27	–	44,27
From 500,0 to 1000,0 and Sevastopol city	65,27*	–	65,27*
From 1000,0 to 2000,0	51,77	–	51,77
More 2000,0	64,30	–	64,30
*Because of too high value for Lviv			

hierarchy of settlements in the general system of settlement of Ukraine.

In the statistical studies of the Ukrainian demographic situation the

population size categories are discerned based on the place of residence [15, p. 1]: permanent population, present and legal population. During population cen-



Note - in the classification by population, the number of urban settlements are shown as of 01/01/2017. Excluding Crimea; rural settlements are not calculated.

Figure— Ukraine settlements categories classifications scheme

suses in Ukraine first two categories are being accounted for. In item 2.1 of Methodical regulations on statistical analysis of population count and structure it is noted that: «Present population is the number of persons that at the time of registration stay at the area of a certain settlement, independent of the place of their permanent residence. Present population of a given area consists of people that stay there at the time of the census irrespective of the duration of their stay, whether they are about to leave it or not, whether or not are they recorded in lists. Permanent population is the number of persons that permanently, during a significant time span live in the area of certain settlement, irrespective of whether they are staying there at the time of the census. Permanent population consists of persons that permanently dwell in given place, irrespective of whether they are there at any given moment and whether the records of them exist in any lists of inhabitants.» [15].

The purpose of NME is to determine the value of a certain land parcel in settlement ( $V_n$ ) [2, items 3]. On the basis of NME the cost of land parcel usage is imposed for parcels that are owned or rented. The level of land values in settlements reflects their level of urban development. Urban development features of settlement form during all its history by its inhabitants, which create its industrial, social and infrastructural potential and form the absolute majority of owners and tenants of land parcels.

Thus, population size as one of the major indices of the formation of the land value of settlement on a regional level, should take into account a permanent population. Currently, Procedure [2, items 7, 2, Appendix 2] doesn't indicate which category of population size by place of residence should be used to

calculate the regional constituent  $K_{mlp}$  – permanent or present. In practice, the values of present population size are usually used. This approach could introduce a significant error in the calculation of the basic NME index - the average (basic) lands value ( $V_{nl}$ ) [2, items 7]. The group of risk includes settlements that are in the number of available and permanent population size fall into different types of cities by administrative status and economic functions [2, items 7].

For instance, the membership to different settlement subgroups with the population size of 20.0 – 49.9 thousand persons or 50.0 – 99.9 thousand persons changes the value of land parcel under the influence of the value of coefficient  $K_{mlp}$  in 0.2 times; for settlement subgroups with population size of 250.0 – 499.9 thousand persons or 500.0 – 999.9 thousand persons – in 0.5 times!

Taking into account the foregoing and based on the studies carried out [13, 14] in Procedure in item 7 and in Supplement 2 it is appropriate to make notion that the calculation of NME is based on sizes of the permanent population at the beginning of the year when the normative monetary evaluation of land in settlement is accomplished.

### ***Conclusions.***

The absence in the Procedure for normative monetary evaluation of land in settlements population category emphasis by place of residence (permanent or present) needed to determine the coefficient  $K_{mlp}$ , leads to ambiguity – whether the size of the permanent or of the present population should be taken into account? This can lead to unfounded understatement or overstatement of the NME value



when different values of population size are used. Since the majority of land parcel owners and tenants are the inhabitants of settlements, the number of which is conveyed by the value of permanent population size, and it is this category of population that creates urban infrastructure, this index should be used when evaluating the values of  $K_{mlp}$  coefficient. The Procedure for normative monetary evaluation of land in settlements (Attachement 2) should mention that the calculation of NME is based on the size of permanent population for the beginning of the year when the evaluation is carried out.

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**Ковальчук І.П., Патиченко О.М.**  
**ЧИСЕЛЬНІСТЬ НАСЕЛЕННЯ ЯК ЧИННИК ФОРМУВАННЯ НОРМАТИВНОЇ ГРОШОВОЇ ОЦІНКИ ЗЕМЕЛЬ НАСЕЛЕНИХ ПУНКТИВ.**

У статті висвітлено особливості формування нормативної грошової оцінки земель населених пунктів (далі скорочено – НГО).

Проаналізована природа формування складової регіонального коефіцієнта диференціальної земельної ренти КМ1, який характеризує чисельність населення (КМ1Н). Запропонована схема класифікації населених пунктів України, яка дає комплексну уяву про ієрархію міських та сільських населених пунктів у загальній системі розселення держави. Здійснена оцінка впливу показників чисельності населення різних категорій за місцем проживання (наявного та постійного) на величину НГО. Обґрунтовано доцільність внесення змін до Порядку нормативної грошової оцінки земель населених пунктів. Зокрема, запропоновано вказувати, що

розрахунок НГО базується на врахуванні чисельності постійного населення на початок року, в якому виконується грошова оцінка земель населеного пункту.

**Ключові слова:** землеустрій, містобудування, нормативна грошова оцінка земель населених пунктів (НГО), чисельність населення.

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**Ковальчук И.П., Патиченко О.Н.**  
**ЧИСЛЕННОСТЬ НАСЕЛЕНИЯ КАК ФАКТОР ФОРМИРОВАНИЯ НОРМАТИВНОЙ ДЕНЕЖНОЙ ОЦЕНКИ ЗЕМЕЛЬ НАСЕЛЕННЫХ ПУНКТОВ**

В статье освещены особенности формирования нормативной денежной оценки земель населенных пунктов (далее сокращенно – НДО).

Проанализирована природа формирования составляющей регионального коэффициента дифференциальной земельной ренты КМ1, характеризующего численность населения (КМ1Н). Предложена схема классификации населенных пунктов Украины, которая дает комплексное представление об иерархии городских и сельских населенных пунктов в общей системе расселения населения в государстве. Осуществлена оценка влияния показателей численности населения разных категорий по месту жительства (наличного и постоянного) на величину НДО. Обоснована целесообразность внесения изменений в Порядок нормативной денежной оценки земель населенных пунктов. В частности, предложено указывать, что расчет НДО базируется на учете численности постоянного населения на начало года, в котором выполняется денежная оценка земель населенного пункта.

**Ключевые слова:** землеустройство, градостроительство, нормативная денежная оценка земель населенных пунктов (НДО), численность населения.

# МОНІТОРИНГ ТА ОХОРОНА ЗЕМЕЛЬ

УДК 911.2:912.43-12

## СУЧАСНІ МОРФОДИНАМІЧНІ ПРОЦЕСИ В МЕЖАХ КОМПЛЕКСНОЇ ПАМ'ЯТКИ ПРИРОДИ “СТІЛЬСЬКА”

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Проаналізовано закономірності просторового поширення сучасних морфодинамічних процесів в межах комплексної пам'ятки природи “Стільська”. Окреслено чинники і передумови інтенсивного розвитку цих процесів. Розглянуто особливості поширення і прояву ерозійних, зсувних, обвальо-осипних, карстово-суфозійних, біогенних та антропогенних процесів в межах Стільського городища та його околиць. Систематизовано наслідки розвитку небезпечних морфодинамічних процесів. Створено серію карт і моделей, які відображають особливості прояву руйнівних процесів.

**Ключові слова.** Пам'ятка природи, морфодинамічні процеси, розвиток, яркова ерозія, зсуви, карст, суфозія, заболочення.

### Постановка проблеми.

На основі проведених польових конструктивно-географічних досліджень в межах комплексної пам'ятки природи “Стільська”, спрямованих на виявлення особливостей геологічної і гідрогеологічної будови та властивостей рельєфоутворювальних відкладів, кліматичних і

гідрологічних умов, а також аналізу аерокосмічних знімків визначено спектр сучасних морфодинамічних процесів. Він охоплює шість видів процесів [7]:

- *ерозійні* (площинна (схилова) ерозія; яркова (лінійна) ерозія; руслова ерозія);
- *зсувні* (структурні зсуви, зсуви у пухких відкладах, зсуви-спливи);

- *обвальньо-осипні* (приурочені до ділянок розвитку донної і бічної ерозії);
- *карстово-суфозійні* (розчинення, вилуговування та провалювання земної поверхні);
- *біогенні* (вітровальні, заболочування, підтоплення тощо);
- *антропогенні* (розроблення родовищ піску, будівельного каміння, утворення нових від'ємних і додатних форм рельєфу, прокладання та експлуатація доріг тощо).

У рамках проекту “Розробка та впровадження заходів, спрямованих на збереження природно-історичного середовища комплексної пам’ятки природи місцевого значення “Стільська” включно з основним її компонентом – городищем IX–XI століть” нами здійснено оцінювання сучасного стану пам’ятки, зокрема визначено ступінь ураження природно-історичного середовища небезпечними морфодинамічними процесами, встановлено причини, чинники та умови прояву руйнівних процесів, здійснено прогнозування змін стану природно-історичного середовища та обґрунтування системи заходів, спрямованих на оптимізацію стану пам’ятки, захист об’єктів історичного середовища від руйнівного впливу морфодинамічних процесів.

**Метою статті** є аналіз розвитку сучасних морфодинамічних процесів та наслідків їх прояву в межах комплексної пам’ятки природи “Стільська”.

### ***Методика конструктивно-географічного дослідження.***

Активність сучасних морфодинамічних процесів оцінено за такими показниками: кількістю новоутворених за період часу форм рельєфу на

одиниці площі, часткою активізованих форм рельєфу на одиниці площі досліджуваної території або річково-го басейну, збільшенням частки площ досліджуваної ділянки, для яких ступінь загрози руйнування небезпечними процесами зріс та ін. Інтенсивність розвитку процесів визначено такими способами: порівнянням одномасштабних топографічних карт, аерофотознімків і космознімків; закладанням відповідних реперів на активних формах рельєфу; фотографуванням активних форм з одного базису знімання та порівнюванням різночасових фотографій; польовим картуванням; методами математичного моделювання і прогнозування.

### ***Виклад основного матеріалу дослідження.***

Розглянемо закономірності просторового поширення, масштаби, тенденції і наслідки подальшого розвитку небезпечних морфодинамічних процесів у досліджуваному районі.

**Ерозійні процеси.** Ділянки інтенсивного розвитку цих процесів розташовані у середніх і верхніх частинах найбільших яркоподібних долин водозбірних басейнів струмків Затінок і Химина Долина. У середніх частинах цих форм сліди інтенсивного розмиву простежуються, зазвичай, одразу нижче від перепадів у днищах долин, зумовлених виходами потужної (біля 4 м) верстви миколаївських пісковиків неогену. Ці відтинки долин виділяються значною глибиною врізу (до 8–10 м) та стрімкістю схилів, а також порівняно значним похилом вузького дна, яке часто “завалене” масами пухких і скельних порід, що сповзли чи обвалились зі схилів. Їм відповідають яркоподібні долини зі слідами сві-

жого розмиву, які розташовані нижче від перепадів.

Яри приурочені до стрімких (крутизна до 40°) берегів довжиною від 300 до 800 м древніх форм лінійної ерозії або річок. Глибина ярів коливається від 2 до 15 м і більше, а ширина від 2 до 20–30 м. Вони характеризуються порівняно невеликою водозбірною площею (0,011–0,113 км<sup>2</sup>). Такі яри класифіковані як берегові [9]. Про інтенсивний розвиток ерозійних процесів у середніх частинах великих яркоподібних долин свідчать схили цих форм, позбавлені ґрунтово-рослинного покриву, локально розвинені свіжі донні врізи та зв'язані з ними невеликі конуси виношення, розташовані у місці виположення повздожнього профілю долин.

Розвитку ерозійних процесів на зазначених ділянках долин сприяє літологічний склад неогенових і палеогенових порід, що залягають нижче від верстви стійких щодо розмиву миколаївських пісковиків неогену. Виразні сліди свіжого розмивання виявлені також на відтинках окремих яркоподібних долин, що розташовані вище від перепадів. Переважає тут не глибинний розмив, а бокова ерозія. Засвідчують це незакріплені й слабо закріплені рослинним покривом схили підмиву, характерні для цих долин. Сліди врізання, простежені у днищах окремих долин, свідчать про низькі темпи розвитку глибинної, у тім числі регресивної ерозії [8].

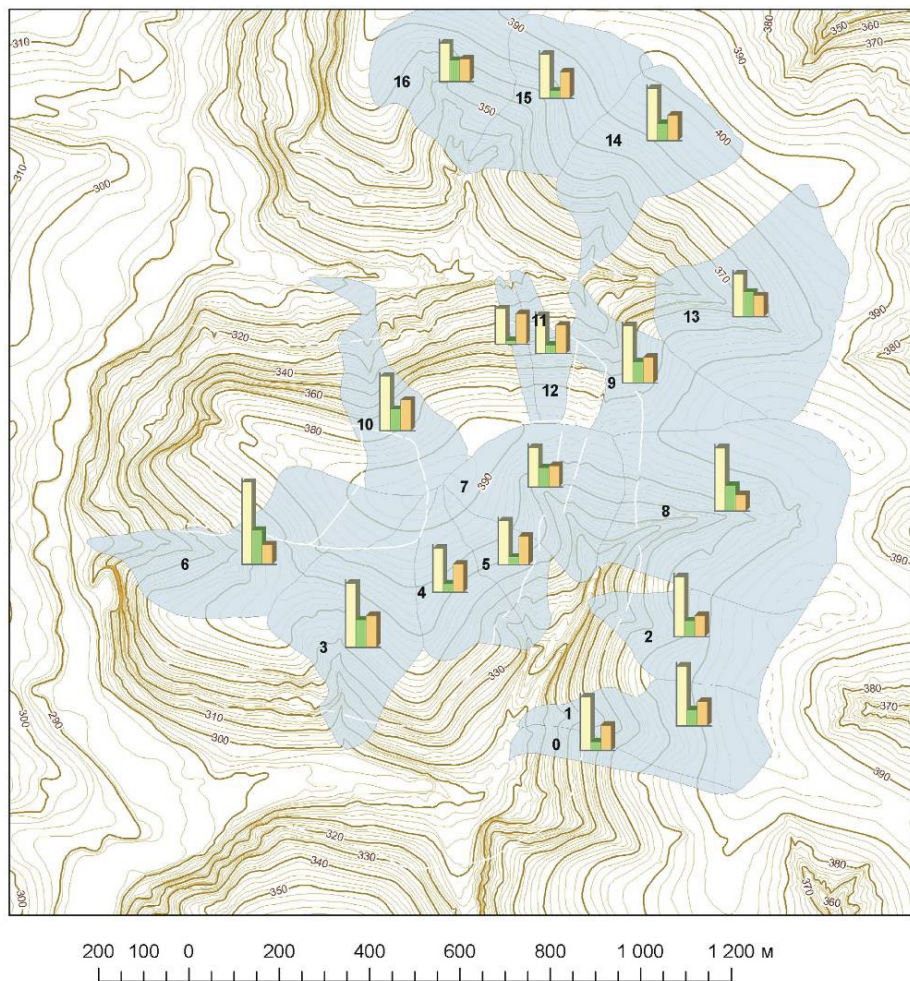
Інша форма прояву сучасних ерозійних процесів пов'язана із зародженням та розвитком ерозійних врізів, приурочених до оборонних валів, що розміщені на схилах; виникненню і розвитку таких форм сприяє концентрація водного потоку. На досліджуваній території виявлено чоти-

ри активні форми даного типу – одну вимоїну і три короткі яри. Усі врізи розташовані на продовженні ровів, які супроводжують вали городища. Зовнішній вигляд цих форм і різний ступінь закріплення рослинністю їхніх схилів свідчать про те, що вони перебувають на різних стадіях розвитку і характеризуються різною активністю. Активні форми розташовані у верхів'ї Химиної долини. Тут оборонний рів розташований під кутом до падіння схилу, тому перехоплює й концентрує поверхневий стік з порівняно великої його площі.

Безпосереднім кліматичним чинником ерозії є опади, загальна кількість яких коливається від 450 до 778 мм за рік [7]. Протягом кожного десятиріччя простежуються три-чотири максимуми і три-чотири мінімуми у режимі опадів. Найбільша кількість опадів припадає на травень–липень. Головна кількість опадів випадає у вигляді дощу і злив у теплий період року. У цьому районі протягом року в середньому випадає один-два дощі з шаром 30 мм опадів. Під час зливових дощів вода не встигає просочитися, значна її частина збігає по поверхні схилу, змиваючи ґрунт. Для сучасних ерозійних форм характерний свіжий розмив днища і схилів, що свідчить про їх швидкий розвиток, зокрема, ріст у довжину, ширину і глибину, а це значно впливає на збереження історико-архітектурного об'єкта. Тому здійснено розрахунок потенціалу лінійного росту ярів, які безпосередньо можуть впливати на Стільське городище.

Оцінку потенціал максимально можливої довжини ярів розраховано математичним способом. Розрахунок потенціалу росту ярів виконувався на підставі аналізу топографічних карт масштабу 1 : 10 000 (рис. 1).





### Умовні позначення

— вали

співвідношення довжин, км



довжина схилу

довжина яру

потенціал лінійного росту

Рис. 1. Прогнозна карта потенціалу лінійного росту ярів в межах комплексної пам'ятки природи місцевого значення "Стільська"



Об'єктом прогнозування виступали яри довжиною більше 25 м, які виникли й розвиваються в межах добре виражених водозборів. Потенціал лінійного росту розраховано для восьми ярів і двох яркових систем, в яких кожен відросток можна вважати окремим самостійним яром. Сумарно потенціал лінійного росту розраховано для тих 17 ерозійних форм, які значною мірою впливають на сучасний стан схилів та об'єктів історичного середовища Стільського городища. Залежно від глибини вертикального розчленування, довжини і крутизни схилів, типу відкладів, характеру рослинного покриву, виду природокористування, типу ярів і стадії їхнього розвитку, потенціал лінійного росту ерозійних форм змінюється від 152 до 300 м [1]. Аналіз морфології схилів та ярів, розрахованого потенціалу їхнього лінійного росту дає підстави стверджувати: всі досліджувані лінійні ерозійні форми перебувають на різних стадіях вироблення профілю рівноваги. Яри довжиною 80–260 м на довгих (330–600 м і більше) схилах, де потенціал лінійного росту значно перевищує 150 м, а середні показники становлять 235 м, дуже насторожують. Такі яри можуть мати велику активність лінійного росту і в разі сприятливого поєднання природних та антропогенних чинників створюють небезпеку для руйнування історико-археологічних об'єктів.

Найбільший потенціал лінійного росту ярів (300 м) отриманий для яру № 3, який розміщений на схилі південної експозиції на віддалі близько 200 м на схід від Стільська. Потенціал лінійного росту яру № 13, розміщеного у верхів'ї струмка Затінок, становить лише 198 м, але в майбутньому ця ерозійна форма може

прорізати вододіл. Така ж ситуація простежується на ярах № 11, 12 і 16. Результати виконаного аналізу дають змогу стверджувати, що яр № 6 (водозбір струмка Затінок) та яри № 1а і 2 (водозбір струмка Химиної Долина) є найнебезпечнішими для історико-археологічних об'єктів Стільського городища, оскільки темп їхнього розвитку є досить високим [7].

**Зсувні процеси.** Найвищим рівнем інтенсивності зсувних процесів характеризується верхів'я струмка Химиної Долина, дещо меншою – верхня частина долини струмка Затінок. Сучасні зсувні процеси, які загрозливі для історико-археологічних об'єктів Стільського городища, проявлені в існуванні активних циркоподібних зсувів та дрібніших зсувних форм, які називають опливинами та осовами. Циркоподібні зсуви приурочені до глинистих відкладів палеогену, які виконують роль водотриву. Вони трапляються там, де палеогенові глини розчленовані яркоподібними врізами. Часто зсуви розташовуються попарно, один навпроти іншого, по різних боках цих долин, зрідка їх можна бачити у верхів'ях долин [1].

Активні зсуви руйнують об'єкти історичного середовища, а в багатьох місцях створюють загрозу руйнування історичної і природної спадщини. Частина зсувів, розташованих на значній відстані від оборонних споруд городища, поки що не загрожує цим об'єктам. Особливу небезпеку становлять два “парні” зсуви, розміщені у верхів'ї Химиної Долини.

Опливини, виявлені на дослідженій території, є дрібними зсувами-спливами, вони приурочені здебільшого до схилів глибоких яркоподібних долин. Утворились внаслідок насичення водою приповерхне-

вих пухких відкладів схилів, часто підмитих в основі водотоком. Зазначена особливість формування опливин зумовлює їхній зв'язок з ділянками активізації руслових процесів (бокова ерозія) та яркової ерозії. Особи, на відміну від опливин, захоплюють корінні породи й тому, зазвичай, містять брили скельних порід. Усі опливини та особи є недавно утвореними, свіжими формами.

Варто виокремити такий схиловий процес як опливання – порівняно повільний процес, спричинений надмірним зволоженням верхнього шару пухких відкладів. На території городища геологічні ознаки цього процесу добре виражені (стрімкі, місцями з виходами корінних порід, стінки відриву та розташовані нижче від них заболочені сходинки). Вони поширені у місцях роззосереджених виходів підземних вод неогенового водоносного горизонту. Опливання за сучасних умов розвитку рельєфу не створює реальної загрози існуванню історико-археологічних об'єктів, але є потенційно небезпечним у західній частині південного схилу долини струмка Затінок.

**Обвальньо-осипні процеси.** Вони парагенетично пов'язані з ярковою ерозією і є невід'ємною складовою активного розвитку ярів. Поширені ці процеси здебільшого на схилах ярів та приурочені до ділянок активного розвитку донної і бічної ерозії. Підмивання схилів і бортів ярів та поглиблення їхнього дна призводять до втрати стійкості порід у відкосах та їхнього руйнування. Важливу роль при цьому відіграє специфічна тріщинуватість масивів порід, які прилягають до ярів. Наявність тріщин розвантаження, що простягаються вздовж брівок, сприяє обвалюванню

відділених ними блоків порід. Значний вплив на активізацію цього процесу має також суфозія, розвиток якої знижує стійкість масиву порід у відкосі. Уламковий матеріал унаслідок обвалювання відкосів нагромаджується на дні ярів і часто утворює тимчасові загати, які сприяють активізації донної ерозії (у разі прориву загати). Ділянки високої інтенсивності тяжіють до верхів'їв ярів, низької – до їхніх задернованих середніх та нижніх частин. Найактивнішими ці процеси є в долині струмка Затінок та на схилах його допливів. Розвиток обвальньо-осипних процесів, який простежується в активних яркових формах, зумовлює значне за масштабами руйнування оборонних споруд городища і потребує вживання заходів щодо його стабілізації.

**Карстово-суфозійні процеси.** Сучасні карстові та суфозійні процеси на території Стільського городища тісно пов'язані між собою. З огляду на це є сенс розрізняти суфозійно-карстові і власне суфозійні процеси. Суфозійно-карстові процеси розвиваються у товщі багрянкових вапняків, широко розповсюджених на досліджуваній ділянці. Особливості поширення поверхневих карстових форм (приуроченість карстових лійок до периферійних частин і відносно понижених, сідловинних ділянок вершинних поверхонь платоподібних піднять та їхнього розташування уздовж відносно прямих ліній) свідчать про те, що чинниками інтенсивного розвитку суфозійно-карстового процесу у природних умовах виступали: наявність і потужність глинистих відкладів косівської світи, що залягають на закарстованих породах; тріщинуватість багрянкових вапняків і залягаючих нижче від них піщаних відкладів.

Аналіз отриманих даних показує, що ступінь ураження території карстовими формами є неоднаковим, тобто інтенсивність розвитку процесу на різних ділянках суттєво відрізняється. Найвища інтенсивність розвитку процесів простежується у верхів'ях струмка Затінок та Химина Долина. Ці ділянки характеризуються найвищим ступенем загрози руйнування об'єктів історичного та природного середовища.

Яскравим проявом сучасної активності суфозійно-карстового процесу на території городища та його околиць виступають передусім молоді карстові лійки – стрімкосхилові заглибини лійко- і чашеподібної форми. У днищах таких форм часто можна побачити отвір водовідвідного каналу (понору). Морфологічно молоді карстові лійки іноді розташовані всередині давніх карстових заглибин і на карті сучасних процесів відзначені як оновлені лійки. З-поміж молодих карстових форм можна вирізнити невеликі провали.

Молоді й оновлені карстові лійки зачисляють до категорії активних карстових форм. Таких форм порівняно багато. Серед майже ста лійок, виявлених у районі городища, до активних належать 44 форми. З урахуванням значної частки активних карстових лійок і високих темпів виникнення свіжих карстових форм можна передбачати, що активний розвиток сучасного карстового рельєфу є наслідком активізації суфозійного процесу – інтенсивного “промивання” частково та повністю заповнених карстових пустот, утворених раніше впродовж тривалого проміжку часу.

Поширення активних карстових форм свідчать про їхній просторово-генетичний зв'язок з активними

ерозійними формами. Зокрема, частка молодих та оновлених лійок є більшою на ділянках, прилеглих до яркоподібних долин зі слідами свіжого розмивання. Ще помітнішим є зв'язок активних карстових форм з оборонними спорудами городища. Варто зазначити, що ці форми розташовуються, зазвичай, з внутрішнього боку валів, насипаних уздовж простягання схилу, або ж супроводжують побудовані за падінням схилу вали з внутрішнього і зовнішнього боку.

Приуроченість активних карстових форм до оборонних валів городища підвищує ступінь загрози сучасних суфозійно-карстових процесів. Активний розвиток процесу супроводжується утворенням поверхневих форм карсту. Здебільшого вони репрезентовані карстовими лійками діаметром від 1–5 до 10 м, зрідка більше і глибиною від 1–3 до 4–5 м [1]. Лійки, зазвичай, мають ізометричну, іноді витягнуту форму та стрімкі, часто незадерновані схили. У багатьох з них на дні виявлено активні понори різної форми й розмірів. У місцях, де вапняки залягають безпосередньо біля поверхні, трапляються відкриті карстові тріщини. Поверхневі форми карсту мають чітко виражене просторове розташування. Вони простежуються у вигляді своєрідних ланцюжків, утворюючи значні за площею карстові поля. Найбільше карстових лійок виявлено у місцях зміни морфології рельєфу, які фіксують ділянки близького від поверхні залягання вапняків. У міру наближення до вододілів, де вони перекриті косівськими глинами, їхня кількість різко зменшується.

**Біогенні процеси.** Біля Стільського городища ростуть (мабуть і росли) мішані ліси. Здебільшого, це букові, грабові, вільхові ліси, які розповсю-

джені самосівом. Наявні модрина, ясен, дуб, клен, явір, осика, береза. Ялина та сосна, головню, насаджені. У районі городища серед листяних порід переважали бук і граб. Після Другої світової війни, розпочинаючи з 1945 р., проводили суцільні вирубування лісу, який вивозили автомобільним транспортом до залізничних станцій Розвадів та Щирець для опалення міст. За один-два роки місця вирубки засаджувались тими самими породами.

В межах Стільської сільської ради лісові масиви розташовані здебільшого на лівобережжі р. Колодниця та належать до ДП “Стрийський лісгосп”. Лісистість у межах пам’ятки природи становить 95 %, а стан лісів у різних її частинах суттєво відрізняється: ліси надміру розріджені, недостатньо доглянуті, місцями пошкоджені вітровалами, зсувними та ерозійними процесами (схили струмків Хими́на Долина і Загінок). Сьогодні вирубки повністю відновилися і ліси можуть мати промислове значення. Проводились суцільні вирубування й у 60–70-х роках ХХ ст., а також так звані “санітарні” рубки. Ці роботи виконували вже із застосуванням сучасної техніки. Наслідки таких вирубок негативні. Знищені колишні дороги, з’явилися нові яри, активізувалася ерозія ґрунтів, відбулося замулення річок і струмків. Були тут і соснові та ялинові насаджені ліси на схилових ділянках. Хвойний ліс також ріс на землях селян. Ще півстоліття тому можна чітко бачити територію городища, аналізувати всі підходи, брами тощо. На жаль, внаслідок сучасної “цивілізації”, безсистемного засадження, вирубування лісів поступово утворюються яри на колишніх дорогах, виростають непрохідні чагарники. Та й ті місця, де про-

водили недавні розкопки археологічні експедиції, потребують більшої уваги, зокрема, лісівників [4]. У колись чистому лісі утворилося чимало заболочених понижень, вирости важкопрхідні зарості чагарників та ожини.

У прилеглій до городища території протікає р. Колодниця, лівий доплив Дністра. Нині стан річки суттєво змінився. Зменшення стоку пов’язане із забором питної води для потреб м. Новий Розділ (ряд свердловин з насосними станціями) та несприятливим станом природного середовища. Очищені береги річки і струмків, які впадають вздовж всього русла, поступово замулюються. Заболочення низин, ерозія ґрунтів у лісах у зв’язку з вирубкою та наявністю стихійних доріг для вивезення лісу призводить до швидкого стікання води під час дощів. Раніше чисту воду річки використовували для господарських потреб. Сьогодні це можливо тільки до проходження через населені пункти, бо в межах населених пунктів, а й нерідко і поза ними, береги річки закидані сміттям.

**Антропогенні процеси.** Прояв антропогенних процесів в межах пам’ятки природи має давню історію. Місто Стільське виникло в кінці IX – на початку X ст. унаслідок будівництва столиці князівства теребовлян або й всієї Великої Хорватії. Місту передували три селища, які існували тут у VII–IX ст. Величезне городище площею 250 га з довжиною валів 10 км було більше за тогочасний Київ майже у десять разів. Воно було здобуте у 982 р. військом Київського князя Володимира Святославича. У 1330 р. Стільське ще згадане як містечко, а пізніше втратило цей статус [3]. Згідно з переказами, село знищили татари.

Під час Другої світової війни село повністю спалили. До знищення будинки розташовувалися на прилеглій до р. Колодниця території. Усі інші землі та наявні сінокоси старанно обробляли. Нині в селі відбувається друга відбудова. Будинки, здебільшого, будують подалі від річки, дерев'яні будівлі замінюють на цегляні. У зв'язку з виїздом сільської молоді до промислових міст Миколаєва та Нового Роздолу, в селі спостерігається тенденція до зменшення кількості мешканців. Середній вік населення постійно зростає.

Певний інтерес мають результати історико-географічних досліджень землекористування. Вони свідчать, що в кінці XVIII ст. розораність території Бібрсько-Перемишлянського району коливалася в межах 30–55 %, а лісистість – 23–50 %. У другій половині XIX ст. у Бібрському уїзді орні землі займали 49,7 %, луки, городи і пасовища – 22,1 %, а ліси – 28,2 %. У другій половині XX ст. сільськогосподарські угіддя у Перемишлянському та Миколаївському районах становили, відповідно, 59,6 і 53,7 %, а рілля – 43,5 і 30,3 %, сіножаті, пасовища і сади, відповідно 16,1 і 23,4 %, а ліси – 30,0 і 27,9 % [5].

Важливим є поселенський вплив на складові природного середовища. Його ступінь і наслідки різнобічні та включають, по-перше, вирубування лісів та використання деревини для житлового будівництва, опалювання осель. Цей процес триває безперервно, починаючи з часу виникнення тут перших поселень і будівництва городища; по-друге, це викорчовування чагарників, вирубування лісів та створення на їх місці сільськогосподарських угідь, оборонних споруд, жител, доріг, інших господарських об'єктів.

Також важливим є белігеративний вплив. Він полягав у будівництві оборонних споруд, крівок, інших видах військової діяльності, які активізують морфодинамічні процеси.

### **Наслідки розвитку небезпечних морфодинамічних процесів.**

Розвиток в межах пам'ятки природи ендегенних та екзогенних процесів супроводжується широким спектром негативних наслідків, які об'єднані за такими критеріями [1]: ступенем охоплення (ураження) об'єктів природно-історичного середовища пам'ятки; активністю розвитку; потенціалом розвитку; рівнем небезпеки для об'єктів історичного середовища; піддатливістю до зарегулювання.

*За ступенем ураження території* пам'ятки природи морфодинамічні процеси утворюють ряд, в якому роль кожного наступного виду процесу є меншою порівняно з попереднім: процеси яркової ерозії → карсто-во-суфозійні процеси → зсувно-опливинні процеси → площинна ерозія → обвальні процеси → заболочування → антропогенна дигресія. Найбільшу загрозу для природного середовища та історичних об'єктів пам'ятки за цим критерієм становлять яркова ерозія, утворення нових карстових форм та активізація існуючих зсувно-опливинних явищ.

*За активністю розвитку* морфодинамічні процеси розташовуються у такій послідовності: карсто-во-суфозійні процеси → лінійна (яркова) ерозія → зсувні, опливинні та обвальні процеси. Найбільш активними і динамічними формами рельєфу є яри у басейнах струмків Затінок та Хими́на Долина, зсуви на їхніх схилах та карстові форми у прибережних частинах долин і ярів і біля другого ряду валів.

За потенціалом розвитку виокремлюють три види процесів: лінійна ерозія (потенціал лінійного росту ярів сягає 152–300 м); зсувні та опливні процеси (вони супроводжують зміни стану ярів – їхній ріст у довжину, глибину та ширину); карстово-суфозійні процеси (вони найбільш активно розвиваються у створених природою або людиною сприятливих умовах – смугах вздовж ярів, валів з ровами, місцях розташування древніх жител тощо).

За рівнем небезпеки, створеної морфодинамічними процесами для історичних і природних об'єктів пам'ятки, їх розташовують таким чином: процеси яркової ерозії (ріст ярів у довжину, глибину і ширину, утворення нових форм лінійної ерозії, активізація гравітаційних процесів на схилах ярів і прилеглих до них територіях) → карстові і суфозійні процеси (особливо у місцях розташування валів, ровів, жител, древньої людини, поблизу ярів тощо) → активний прояв зсувних, опливних та обвальних процесів (на схилах ярково-долинних форм, уступах горбів тощо), які переміщують великі маси гірських порід до дна і тальвегів ярів та струмків. Загалом, за рівнем небезпеки перше місце посідають ерозійні, друге – карстові, третє – зсувні процеси. У випадку активного лісокористування є загроза катастрофічної активізації площинної та лінійної ерозії, а також зсувних процесів.

За критерієм піддатливості до зарегулювання на першому місці є процеси площинної ерозії, на другому – лінійної, на третьому – зсувні і на четвертому – карстово-суфозійні. Для виконання комплексу процесорегулювальних заходів треба виконати проектно-вишукувальні дослідження та забезпечити реалізацію рекомен-

дацій, виділивши необхідні матеріально-технічні і фінансові ресурси.

### **Висновки.**

На тлі відносно доброї збереженості природного та історичного середовища комплексної пам'ятки природи “Стільська” проведені конструктивно-географічні дослідження виявили низку проблем, спричинених активізацією сучасних морфодинамічних процесів під впливом як природних (сучасні рухи земної кори, значна кількість та інтенсивність опадів), так і господарських (лісгосподарська та інші види діяльності людини) чинників. У спектрі цих процесів найнебезпечнішими для природного та історичного середовища є яркова ерозія, зсувні та карстово-суфозійні явища. Побудовані за результатами польових досліджень картографічні моделі умов й чинників розвитку та особливостей поширення екзогенних процесів дали змогу виявити такі закономірності:

1) природно-географічні та геолого-тектонічні особливості пам'ятки природи зумовили тісний зв'язок між будовою рельєфу, поширенням та активністю певних наборів процесів – їхніх парагенетичних комплексів. У складі цих комплексів процесів панівними є процеси лінійної ерозії, які активізують зсувні та обвальні-осипні, а також карстово-суфозійні явища;

2) найураженішими цими процесами є ділянки, розташовані у верхів'ях долин струмків Загінок і Хими́на Долина, а також поверхні схилів, приурочені до передмість дитинця (між першою і другою лініями оборонних валів);

3) на момент досліджень найактивніше розвивається яркова ерозія, зсувні й карстово-суфозійні процеси. По-



льовим картографуванням виявлено 97 форм поверхневого карсту, з яких 44 перебувають в активній стадії розвитку. Закартовано близько 30 активних зсувних вогнищ, відстежено активний прояв яркової ерозії (до 60 місць росту ярів) як у верхів'ях струмків, так і на схилових поверхнях (вздовж стежок і доріг). Визначено, що чинником активізації яркової ерозії є як природні чинники (високий ерозійний потенціал рельєфу, значна кількість опадів (до 770 мм/рік) і висока інтенсивність (до 2,7 мм/хв) дощів), так і господарська діяльність людини (у т. ч. й давньо-історична). Сьогодні на яркову ерозію активно впливають оборонні споруди городища, які зумовлюють перерозподіл та концентрацію поверхневого стоку і розмив їхніх днищ.

Активний розвиток охарактеризованих процесів створює загрози та вже призвів до руйнування об'єктів історичного середовища, насамперед, земляних валів, ровів, давніх жител та доріг. Оскільки потенціал росту ярів становить від 152 до 300 м, то ризик руйнування об'єктів історичного середовища як лінійною ерозією, так і зсувами та карстом, є дуже високим. Під впливом ерозійних і зсувних процесів руйнуються не лише історичне середовище, а й абіотичні й біотичні компоненти ландшафту: активізуються вітровальні явища, які призводять до посилення площинної ерозії і карстово-суфозійних процесів та є причиною ураження насаджень шкідниками та хворобами, що знижує естетичну цінність та погіршує екологічний стан пам'ятки.

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**THE ACTUAL MORPHODYNAMIC PROCESSES WITHIN COMPLEX NATURAL MONUMENT "STIL'SKA"**

*The spatial distribution of dangerous morphodynamic processes patterns within complex natural monument "Stil'ska" are analyzing. In addition, outlining factors and preconditions of*

*intensive exogenous processes development. The features of erosion, landslide, subsidence-talus, karstic-suffusion, biogenic and anthropogenic processes distribution within economy "Stil'ske" and its environs are considered. Systematizing consequences of dangerous morphodynamic processes development. Creating a maps and models series that reflect features of destructive processes display.*

**Key words.** *Natural monument, morphodynamic processes, development, ravine erosion, landslides, karst, suffusion, bogging.*

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**СОВРЕМЕННЫЕ МОРФОДИНАМИЧЕСКИЕ ПРОЦЕССЫ В ПРЕДЕЛАХ ПАМЯТКИ ПРИРОДЫ "СТИЛЬСКА"**

*Проанализировано закономерности пространственного распространения современных морфодинамических процессов в пределах комплексной памятники природы "Стильска". Определены факторы и предпосылки интенсивного развития этих процессов. Рассмотрены особенности распространения и проявления эрозионных, оползневых, обвально-осыпных, карстово-суффозионных, биогенных и антропогенных процессов в пределах Стильского детинца и его окрестностей. Систематизировано последствия развития опасных морфодинамических процессов. Создано серию карт и моделей, отражающих особенности проявления разрушительных процессов.*

**Ключевые слова.** *Памятка природы, морфодинамические процессы, развитие, линейная эрозия, оползни, карст, суффозия, заболачивание.*

## LAND COVER DYNAMICS OF OLESHKY SANDS: TIME-SERIES ANALYSIS 1987-2017

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*Oleshky Sands is the largest expanse of sand in Ukraine and the second in Europe. In the beginning of XX century sands moving outside of arenas was almost stopped by planting trees (*Pinus nigra* ssp. *pallasian* and *Pinus sylvestris* L.), and the territory had different use during the years. A 30-year (1987-2017) time series of Landsat imagery obtained via USGS geoservice was used to reveal land cover dynamics of deserted landscapes of Oleshky sands using QGIS software. Heavy sand storms can impact nearby settlements and expose harmful effect on local industry and quality of life of local communities.*

*Forest fire is another dangerous factor for protective forest plantations during last years. Our estimation shows that sandy areas increase during 2000-2017; generally, conservation measures had constant effect despite afforestation of last years. The preventive effect of forest on sands moving at Oleshky sands can be characterized as stable in case of constant care about the forest plantation and proper documentation on land use and ownership.*

**Keywords.** *Combating desertification, landscapes dynamics, land cover change, QGIS, Landsat imagery*

### **Introduction.**

Oleshky Sands is the largest expanse of sand in our country and the second in Europe after Ryn desert in Western Kazakhstan and Kalmykia. Its area estimated as 161.2 sq. km, main part is about 15 km in diameter [1]. It is situated in inland Ukraine in Kherson region near the mouth of Dnipro river and coast of Black Sea (fig.1) and consists of dunes of sand up to five meter height. It is classified as semi-desert region according to temperature and moisture regime [2]. A lot of sparse vegetation is located across these sands, at spring even some wetland and swamp area can occur. At summer air temperature rises to 40°C and more.

State natural reserve “Oleshky sands” was created in 2010 with total area of 8020.36 ha, it is a nature conservation, recreation, cultural, educational and research institution of national importance and a part of the nature reserve fund of Ukraine [4].

In XX century moving sands appear a great danger to local settlements and agriculture, then this was limited by planting a massive of trees (mainly *Pinus nigra* ssp. *pallasian*, and *Pinus sylvestris* L.) around sandy arenas. Now territory is surrounded (mainly on the south) by dense forest planted to prevent dunes moving. In summer this forest often catches fire as can be seen from satellite imagery. Underground



**Fig.1. Location of research territory.**

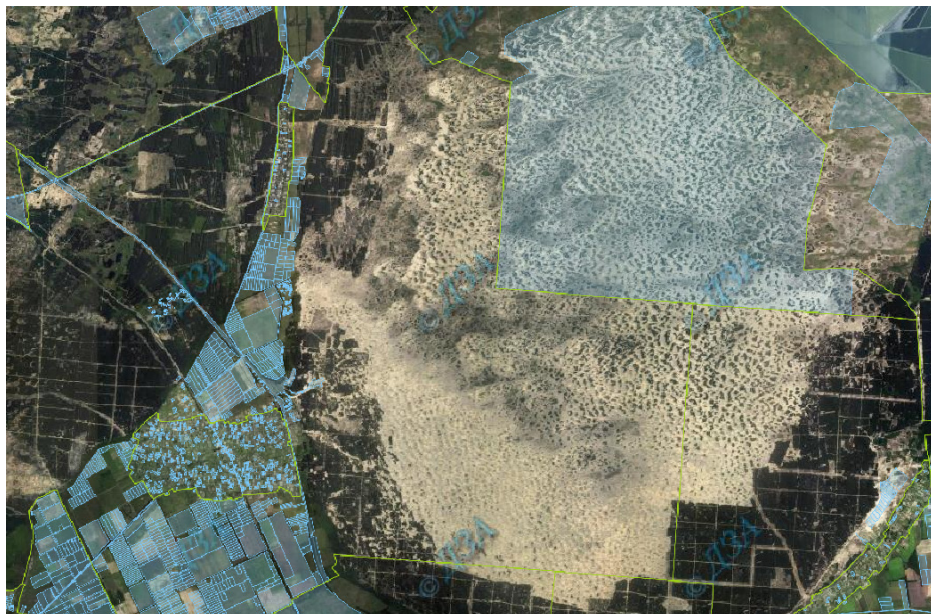
water reserve forms an important part of all local environment as a source of fresh water [5].

There are different hypotheses of reason why this territory became a semi-desert: massive geological events of ice age, meteorite crater, drying of old Dnipro riverbed, but the most common is that it was a great pasture for more than a million sheep in 18-19 centuries, then forest fires, wind erosion made a semidesert here on eolian and alluvial sands as a good geological precondition. Anyway,

there are no evidence of desert before 1800s in historical documents. In XX century this place was used as military polygon [5]. Aim of research — by comparison of 30-year time series of Landsat data on research territory analyze trends in land cover change and reveal drivers of such changes.

### ***Methods and materials.***

USGS data from Landsat-5 and Landsat-8 were used to build time series for research object, main images of series were: 04 October 1987, 18 September 1993, 12 September 2000, 15 September 2006, 20 September 2011, and LT8 for 30 September 2017, as cloud percentage was less than 10% in these dates. This season was chosen due to relative perennial stability of landscapes and low danger of forest fires. QGIS 2.18 and GDAL tools were used to process image data. Public cadastral map of Ukraine using QuickMapSer-



**Fig.2. Oleshky sands on the Public cadastral map of Ukraine [6].**





**Fig. 3. Major land cover changes for period 1987-1993.**

vices plugin in QGIS was used to access information about cadastral plots in research object.

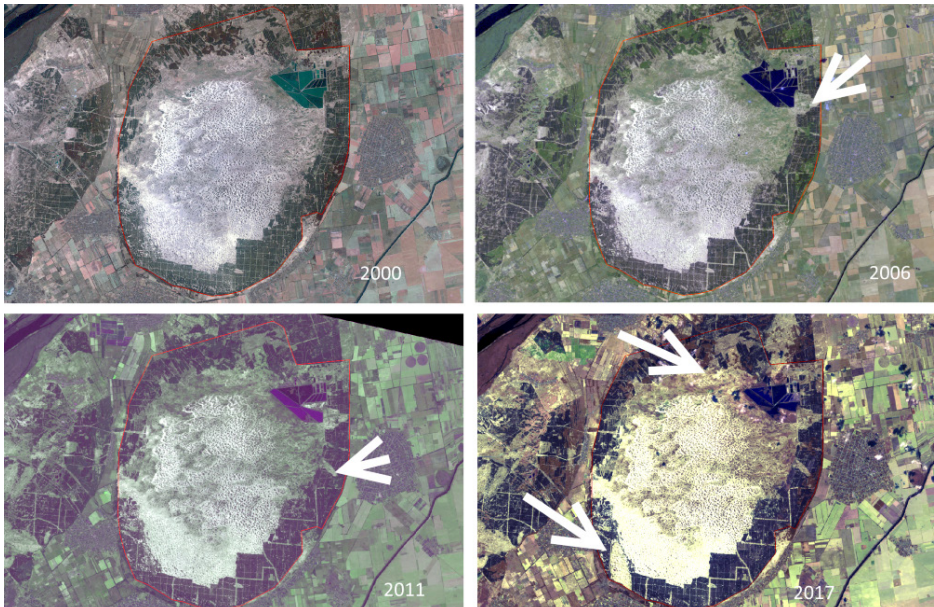
### ***Results and discussion.***

One of main tasks of our research was to assess land ownership and current land use. Public cadastral map of Ukraine [6] shows that state property on land of national reserve is not formed properly as the whole territory. The central plot of 5378.6087 ha and smaller

area to the east of 468 ha are of state property, smaller ones show parcels of private property in a very close proximity to moving sands (fig.2).

A time-series of Landsat images allows us to form a picture of land cover changes of the research area for 30 years. Main changes were connected to increase of sandy areas. The 30-year period was divided for shorter, which display major changes (fig.3, 4).

As main change for period 1987-1993, it can be admitted that reservoirs



**Fig. 4. Major land cover changes for period 2000-2017.**

for fishery at the north-east part was fully filled (fig.3, shown by arrow), while sands were almost constant by area; main reason – balanced land and water management.

Next 17-years period shows expansion of sand on the north-eastern and south-western sides of the arena (fig.4, shown by arrows). Comparing to 2006, on 2011 image a medium sized sand massive appeared (shown by arrow). This period shows evidence of decreasing forest and big sand storms in the south-western part in 2016-2017 (shown by arrows), where forest protection effect was not strong enough supposedly due to poor state of control [3].

On our opinion, the main reasons for imbalance of landscapes for this period are: improper land management, forest fires and lost of good care of forest plantations around the sand arena.

Further research needed to show development of processes of landscape change and a stabilized land use can be achieved in case of control of forest protection plantations around the sand arena. That is impossible without connection with proper formed rights for state land use.

### ***Conclusions.***

A 30-year (1987-2017) time series of Landsat imagery obtained via USGS geoservice was used to reveal land cover dynamics of deserted landscapes of Oleshky sands using QGIS software. Heavy sand storms can impact nearby settlements and expose harmful effect on local industry and quality of life of local communities. Forest fire is another dangerous factor for protective forest plantations during last years. Our estimation shows that sandy areas increase during 2000-2017; generally, conservation measures had constant effect despite afforestation of last years. The

preventive effect of forest on sands moving at Oleshky sands can be characterized as stable in case of constant care about the forest plantation. That is impossible without connection with proper formed rights for state land use.

Next stage of our research will include detailed quantitative and qualitative estimation of landscape changes and improved range of data time-series.

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***ДИНАМІКА ЗЕМЛЕКОРИСТУВАННЯ  
ОЛЕШКІВСЬКИХ ПІСКІВ: АНАЛІЗ ЧАСОВОГО  
РЯДУ 1987-2017 РР.***

*Олешківські піски — найбільший піщаний масив України, друга за розмірами пустеля Європи. На початку 20 століття*



рухомі піски, які спричиняли значні збитки місцевого населення та промисловості, були практично зупинені лісозахисними насадженнями Сосни кримської та Сосни звичайної, територія у ці роки використовувалася за різноманітним призначенням. 30-річний ряд (1987-2017) супутникових знімків Ландсат, отриманих із сервісів USGS, використовувався нами у програмі QGIS для відстеження динаміки опустелених ландшафтів. Сильні піщані бурі та лісові пожежі і зараз можуть чинити значний вплив на місцеву промисловість та сусідні поселення. За нашими оцінками, у період 2000-2017рр. площі піщаних земель зросли, хоча загалом лісові насадження мали стабільний ефект незважаючи на зменшення площі лісів останні роки. Захисний ефект лісових насаджень на запобігання руху пісків можливий за умови строгого контролю стану цих насаджень та належного оформлення права на землекористування.

**Ключові слова:** боротьба з опустелюванням, динаміка ландшафтів, зміни вкриття, QGIS, знімки Landsat.

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**Богданец В.А.**

**ДИНАМИКА ЗЕМЛЕПОЛЬЗОВАНИЯ  
ОЛЕШКОВСКИЕ ПЕСКИ: АНАЛИЗ ВРЕ-  
МЕННОГО РЯДА 1987-2017 ГГ.**

Олешковские пески - самый большой песчаный массив Украины, вторая по величине пустыня Европы. В начале 20 века подвижные пески, которые вызывали значительные убытки местного населения и промышленности, были практически остановлены лесозащитными насаждениями Сосны крымской и сосны обыкновенной, территория в эти годы использовалась по разнообразным назначением. 30-летний ряд (1987-2017) спутниковых снимков Ландсат, полученных из сервисов USGS, использовался нами в программе QGIS для отслеживания динамики опустыненных ландшафтов. Сильные песчаные бури и лесные пожары и сейчас могут оказывать значительное влияние на местную промышленность и соседние поселения. По нашим оценкам, в период 2000-2017рр. площади песчаных земель возросли, хотя в целом лесные насаждения имели стабильный эффект несмотря на уменьшение площади лесов последние годы. Защитный эффект лесонасаждений на предотвращение движения песков возможен при условии строгого контроля состояния этих насаждений и надлежащего оформления прав на землепользование.

**Ключевые слова:** борьба с опустыниванием, динамика ландшафтов, изменения поверхностного укрытия, QGIS, снимки Landsat.

## INNOVATIVE PRINCIPLES OF THE ORGANIZATION, USE AND PROTECTION OF AGRICULTURAL LAND

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*The article considers innovative principles of development are explored. The role of land monitoring in the management of agricultural land use and the preconditions for improving agriculture has been highlighted. The concept of sustainable development of the use of land resources is proposed. The foreign experience and trends of sustainable land use development are described.*

**Key words.** Land monitoring, innovative principles, land use, land protection.

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### ***Relevance of the problem.***

The state of development of agricultural land use has exhausted the possibilities of ill-considered use of land resources, which is inherent in the early stages of industrialization and is carried out by traditional technologies. It becomes increasingly clear that special attention should be paid to improving the conditions and the search for concepts for effective land use.

The negative dynamics of soil fertility necessitates the search for more advanced agricultural systems. Modern intensification of agricultural production due to violation of the boundaries of its main directions has become extensive. The key problems that arose in the practice of agricultural production were: reducing the fertility of the land, environmental degradation, reducing the quality of products, significant losses of external and internal markets for agricultural products [7].

The aim is to study the foundations of innovative development and protection of agricultural land.

An analysis of recent research and publications on innovative development of effective land use was researched in scientific works of domestic scientists: E.V. Butenka, Iristysheva, A.Ya. Sokhni-cha, R.A. Kharitonenko, A.M. Tretyak. At the same time, the modern methodological base does not fully disclose the methodological approaches to the formation of the mechanism of innovative management of agricultural land use.

Butenko Ye.V. and Kharitonenko R.A. noted that now accurate information about the state of the earth's surface is obtained by aerial photo geodetic surveys, based on the use of aerospace images of the earth's surface. The experience of countries that are actively using remote sensing means of land shows the possibility of monitoring the actual state of land resources. It enables to detect changes in a timely manner, to evaluate

them and to eliminate or eliminate the consequences of negative processes. [5]

Sokhnich A.Ya. and Iristysheva I.O. believe that effective and sustainable development of the region and the state as a whole can only be achieved if the newest innovative technologies are used, since they are capable of bringing the country's economy to a new world level.[12]

Tretyak A.M. noted that an efficient and dynamic land management system is one of the main conditions for solving current social, ecological and economic problems of Ukraine. [13]

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

The basis for decision-making with efficient land use is the information that the landowner or land user receives. On the basis of such information it is possible to assess the effectiveness of measures that are consistent with market realities. There are, of course, many ways of obtaining such information, but the monitoring of land is of particular interest, which allows you to obtain operational and systematic information about the research object.

Monitoring as a new trend in the control of soil cover began to develop from the late 70-80s of the last century. Then the problem became global in countries with developed agrarian production, which faced soil degradation after excessive chemical and mechanical loading on them, which had a temporary success. That is why in these countries, from the end of the last century, newest ground protection systems of agriculture began to develop [11].

In modern conditions, monitoring of degradation processes in the context of Ukraine's land resources is virtually absent. [6]

The object of the research is the territory of the VPNUBiP Ukrainy «Velykosnitynske navchalno-doslidne hospodarstvo im. O.V. Muzychenka», which is characterized by manifestations of degradation processes. The problem of water erosion of soils is urgent for the territory of the economy. Under the influence of temporary watercourses, ravines grow, produce a longitudinal and transverse profile, become the cause of increased erosion of adjacent areas. Strengthening degradation processes under the new organizational and legal forms of land use in Ukraine suggests that traditional methods of monitoring and monitoring the state of the agrosphere do not meet modern information requirements. [3] (Fig.1.)

Also, the use in agriculture of lands that are eroded is economically and environmentally disadvantageous, since in such areas we lose the most valuable resource in the form of a fertile soil layer, seed and fuel materials used in the cultivation of degraded lands, with the fact that in such lands you can not get the expected yield in the form of agricultural products.

Therefore, one of the examples of effective use of territories exposed to water erosion in the form of formation of ravines is the United States foreign experience. To minimize the consequences of water erosion, a system of soil and protective measures throughout the country was introduced. The best results for soil conservation and minimization of the effects of water erosion across the state were achieved in Missouri. As a result of the removal of erosion-hazardous areas from cultivation, they managed to optimize the area of arable land, reduce the loss of fertile soil and increase the area of forest lands that best stabilize the ecological environment of the region (Fig. 2).



**Figure 1** An example of the manifestation of erosion processes in the form of a continuation of the ravine on the territory of the VP NUBiP Ukrainy «Velykosnitynske navchalno-doslidne hospodarstvo im. O.V. Muzychenka»

The land with erosion-hazardous slope of the area is removed from agricultural production by pre-fixing it with perennial grasses, this approach has made it possible to minimize the formation of ravines, the flushing of the fertile soil layer and ungrounded cultivation of degraded land in the territory of these farms. To some extent, it's a pity that developed countries have long used integrated approaches to address specific problems, while we have not yet learned how to solve the problem

of losing our national treasure - fertile soil in a comprehensive way, using information on the state of the earth.

The total area of degraded lands is 16.02 ha. Transformation of these areas under perennial plantations will have a significant ecological and soil protection effect. Table 1 shows the area of degraded land for each individual object.

The given area is proposed to be planted with herbaceous vegetation. For this purpose, the seeds of a stoiclosa of be-



**Figure 2.** Example of organization of agricultural territory. Missouri State USA

**Table 1 The area of degraded lands of the territory of the territory of the NVP NUBiP Ukrainy «Velykosnitynske navchalno-doslidne hospodarstvo im. O.V. Muzychenka»**

Name	Area, ha	Seeding rate kg / ha	Number of seed material, kg	Cost of a kilogram of seed, UAH	Seed costs, UAH
Object 1	6,14	18	110,52	80	8841,6
Object 2	1,24		22,32		1785,6
Object 3	1,35		24,3		1944
Object 4	0,59		10,62		849,6
Object 5	4,79		86,22		6897,6
Object 6	1,04		18,72		1497,6
Object 7	0,87		15,66		1252,8
Amount	16,02		288,36		23068,8

telless were selected, which yields a high yield of green mass (up to 100 ts / ha of hay) and has a well-developed root system that provides minimal soil flushing. The price of a kilogram of seeds is 80 UAH, the norm for sowing the stomach is 18-20 kg / ha [14]. After calculating the costs for the seed material, it was calculated that for

complete sowing of erosion-hazardous areas it is necessary 288.36 kg. seeds, which in monetary terms equals 23068,8 UAH.

We will calculate the funds that the management of the economy annually spends on the cultivation and introduction of pesticides on these sites. Data on fuel costs are shown in Table 2

**Table 2 Calculation of costs for the cultivation of degraded areas**

The name of the operation	Fuel consumption per 1 hectare	Cost 1L fuel	Area, ha	Total cost of fuel materials for the cultivation of degraded lands, UAH
Plowing	18,5	22,5	16,02	18346,91
Harrowing (to the stairs)	1,9			
Harrowing (after stairs)	1,5			
Cultivation	2,5			
Bisking	4,4			
Sowing (grains, sunflower, corn)	2,9			
Multi-row cultivation (sunflower, corn)	3,5			
Spraying (irrigation, cultivation with herbicides)	0,7			
Direct harvesting	15			
Amount	50,9			

Fuel consumption data is taken as an arithmetic mean for the following tractor brands: K-700, K-744, T-150K, John-Dir 8100 (240 hp), MTZ-1221, MTZ-82. For harvesting: Don-1500B, SK-5 «Niva», CLAAS MEGA 208. [9] I would like to note that the calculation does not include the cost of depreciation of equipment.

The calculation of the cost of pesticides for the cultivation of the studied areas will be based on the value of the herbicide of the arena «Arena» cost of which is 577.50 UAH / liter., And the rate of introduction of 1-2 l per hectare. After calculating it is determined that the introduction of pesticides on these sites requires 13877.32 hryvnia.

A set of agricultural crops was made on the basis of crop rotation of the farm for 2016, while calculating the costs, the minimum rules for the input of seed material were taken into account.[10] The cost of seed material is based on prices in 2017.[14]

We can conclude that we are seeing savings in planting of erosion-hazardous areas. The cost of involvement is UAH 23068,8, while the savings for the withdrawal of the territories in one year is 51,409.77 hryvnia.

The first step towards establishing a concept for the development of agricultural land use will be the implementation of a number of measures to remove from the cultivation of unproductive and degraded land, or land subject to degradation. Planting of such territories with long-term vegetation will bring not only positive ecological effect, but also will allow to avoid costs for cultivating agricultural crops on unproductive lands.

Innovation is the development, based on the continuous search and use of new ways and areas of realization of potential [8]

Managers of large farms often do not know the exact size of their own crops

**Table 3 Calculation of costs for seed material**

Culture	Sowing rate kg / ha	Cost of seed material, UAH / kg	The cost of seeds per 1 ha.	The cost of seeds, which are planted degraded areas	Seed costs (average for all crops)
Winter wheat	160-250	5	800	12816	19185,55
Wheat Yara	160-270	8	1280	20505,6	
Winter rye	150-250	19,2	2880	46137,6	
Winter barley	160-220	6	960	15379,2	
Soya	40-60	20	1200	19224	
Oat	150-220	10	1500	24030	
Buckwheat	80-100	25	2000	32040	
Pea	220-330	6,8	1496	23965,92	
Winter Rape	4-6	22	88	1409,76	
Seeds of flax	40-70	25	1000	16020	
Beetroot is forage	10-15	120	1200	19224	
Clover	15-20	80	1200	19224	
Alfalfa	10-15	110	1100	17622	
Corn for corn	15-25	40	600	9612	
Corn	30-40	22	660	10573,2	



area, due to their constant change, due to various kinds of natural and administrative processes. The restoration of cartographic material, which was previously carried out on state money, practically ceased. The work is carried out on the basis of maps 10-15 years old, which does not reflect the realities of today [2].

Therefore, the second step to achieve the development of agricultural land use should be the creation of databases in the form of a geoinformation portal reflecting the main indicators of the economy: the state of soils, the content of trace elements in the soil complex, the state of irrigated land, the structure of sown areas and the yield of specific crops in specific fields.

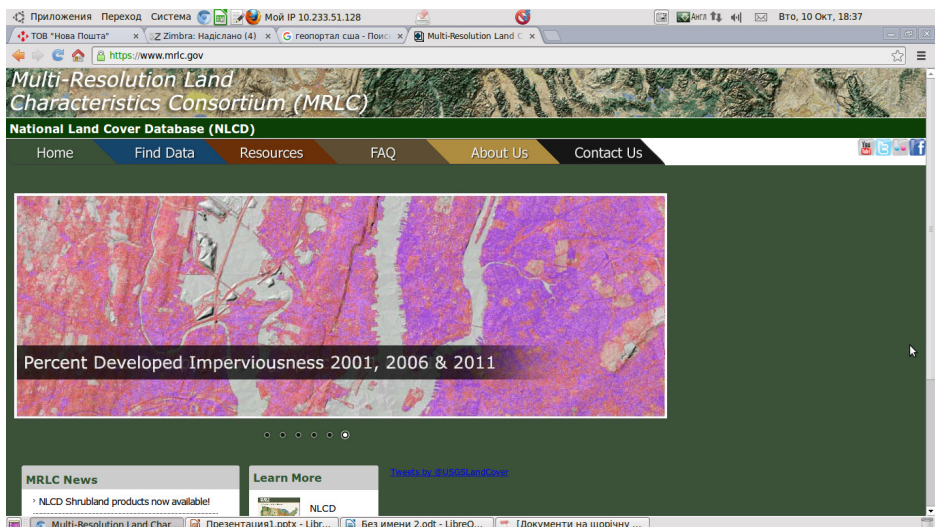
The interface of the US Geoinformation Portal is shown in the figure 3, the data is updated every 5 years and is freely available. A comparative analysis of changes at the national and regional levels is conducted.

Creation of a geoinformation portal should be based on a reliable information base, which we can obtain through

the monitoring of land management. The obtained materials will make it possible to conduct an analysis of the existing state of land resources at all levels, from the state of soil cover and erosion processes to the content of trace elements on specific land plots, which will enable agronomists to draw conclusions about the need for additional application of mineral fertilizers in selected fields of fields. This approach will provide significant savings in the application of mineral and organic fertilizers, since rationing and dosage of the latter will be formed on the basis of reliable information. The geoportal should contain information about:

- The structure of land use
- Crop yield level in the context of alternating crops in crop rotations
- Qualitative soil condition
- Water-air soil condition
- Changes that occur during land use

V.A. Bogdanets believes that the concept of geoportal as a means of obtaining geodata on land resources, their properties, their current state of use,



**Figure 3** An example of the interface of the Geoinformation Portal of the USGS Geological Survey

and in the historical perspective enables them to realize the main requests of potential users in the field of land management and management of territories. [4]

The third step in creating a development concept is the constant, systematic update and accumulation of data. Information should be updated annually, for systematic analysis and the provision of sound ideas for obtaining high yields of agricultural products while respecting the principles of rational land use.

### **Conclusions:**

The article substantiates that the development of agricultural land use can not be realized without an integrated, well-founded scientific approach and monitoring of land. It is proposed to create a vivid and reliable information resource in the form of a special geoportal, which will become a new innovative element of disclosure of information. The materials collected in the information portal described above will provide all the necessary data to profile specialists, which will allow us to draw conclusions about the need for appropriate measures to be taken at individual sections of the field with the possibility of visualization. This approach will ensure cost savings when fertilizing, seed material and promotes the adoption of managerial decisions in shaping the land development strategy and land use based on reliable information.

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**ІННОВАЦІЙНІ ЗАСАДИ ОРГАНІЗАЦІЇ,**  
**ВИКОРИСТАННЯ ТА ОХОРОНИ СІЛЬСЬКО-**  
**ГОСПОДАРСЬКИХ ЗЕМЕЛЬ**

*В статті досліджено інноваційні засади розвитку. Висвітлено роль моніторингу земель в веденні сільсько-*

*господарського землекористування та передумови вдосконалення сільського господарства. Запропоновано концепцію сталого розвитку використання земельних ресурсів. Описано зарубіжний досвід та напрямки зростання сталого землекористування.*

**Ключові слова:** моніторинг земель, інноваційні засади, землекористування, охорона земель.

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**Бутенко Е. В. , Степанец В.В.**  
**ИННОВАЦИОННЫЕ ОСНОВЫ ОРГА-**  
**НИЗАЦИИ, ИСПОЛЬЗОВАНИЯ И ОХРАНЫ**  
**СЕЛЬСКОХОЗЯЙСТВЕННЫХ ЗЕМЕЛЬ**

*В статье исследованы инновационные основы развития. Освещена роль мониторинга земель в ведении сельскохозяйственного землепользования и предпосылки совершенствования сельского хозяйства. Предложена концепция устойчивого развития использования земельных ресурсов. Описаны зарубежный опыт и направления роста устойчивого землепользования.*

**Ключевые слова:** мониторинг земель, инновационные принципы, землепользование, охрана земель.

## FEATURES OF THE FORMATION OF AGRICULTURAL LAND VALUE IN THE EUROPEAN COUNTRIES

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*The influence of the Common Agricultural Policy (CAP) on the agricultural sector of the European Union (EU) has been studied. The specifics of the formation and comparison of the calculated (by the method of capitalization of net operating or rent income) and the market value of agricultural land in Europe and the Netherlands, in particular, are justified.*

**Keywords.** *Agricultural land, value, the land market, the European Union, the common agricultural policy.*

### **Problem statement.**

The EU uses about 40% of its budget to finance the Common Agricultural Policy. This is one of the most important and expensive areas of EU [4]. There is reason to believe that European agriculture would be at a much lower level of profitability without subsidies under the Common Agricultural Policy.

Since CAP has a significant impact on the development of agriculture in Europe, we must consider the system of agrarian sector in the EU Member States and explore the features of the value chain of agricultural land in Europe.

### **Analysis of recent research and publications.**

The question we research and development in the agricultural sector of the Europe-

an Union subject of numerous publications of the Food and Agricultural Organization (FAO), United Nations (UN), the World Bank and the European Commission.

Regarding the relations between Ukraine and the European Union in the field of agriculture, there is a contribution made D. Nizalov, O. Nivievskiy, O. Prokopenko, Y. Mahnova.

**The purpose of the article** is the identifying the features of the formation of agricultural land value in Europe, which includes support under the Common Agricultural Policy.

### **Main material.**

According to the Land Code of Ukraine there is currently a ban on the sale of agriculture land and other land parcels (shares) to January 1st, 2018.

The main condition for the functioning of the agricultural land market is the adoption of a law on their circulation. At the same time, one of the key issues arising from the introduction of the agricultural land market is as follows: How much will a hectare of agricultural land in Ukraine cost?

In order to form an adequate cost of agricultural land in Ukraine, it is worth investigating the market for such lands and their value in the countries of the European Union.

According to various sources the cost of agricultural land in Europe ranges from 1000 to 5000 EUR/ha in Eastern Europe, 15 000 to 30 000 EUR/ha – in Western Europe and 60 000 EUR/hectare [3] in some highly developed countries.

But in most countries, the EU's cost of land ranges from 5000 to 25 000 EUR/hectare, which is an average of 15 000 EUR/hectare.

In the study of EU agricultural sector, it is necessary first of all to note the main feature - the EU Common Agricultural Policy. It dates back to 1962. This is an agricultural policy of the European Union, which is intended to support European farmers by introducing subsidies and other programs. The main task of the CAP is to ensure an acceptable standard of living for farmers and quality food at affordable prices – for consumers, particularly by organizing common agricultural market and application of

the principles of single prices, financial solidarity and advantages of the EU [1].

Support for farmers under the Common Agricultural Policy program is carried out in several main ways, namely:

*Direct payments* – farmers receive annual payments to help stabilize farm revenues in the face of volatile market prices, unpredictable weather conditions and variable input costs. To benefit from these payments, farmers must respect rules and practices concerning environmental standards, animal welfare, food safety and traceability.

*Rural development programs* provide co-funding for projects with economic, environmental or social objectives, primarily targeting farms and SMEs in rural areas.

*Market measures* – special measures linked to specific market situations, as well as support for trade promotion, the school milk and fruit schemes, and producer organizations, which help farmers to get a better deal when negotiating prices and conditions with processors and supermarkets. [5].

According to statistics from the European Union at a time when the number of farms and the number of employees tends to decrease, the gross yield of agricultural activity is gradually increasing. In the period from 2003 to 2014, the gross output of agricultural products in monetary terms increased by 22,3 %. The relevant data are presented in Table 1.

**Table 1. Gross agricultural output of the European Union for the period 2003-2014. [9]**

Branch of agriculture	Gross output of agricultural products, million EUR							Dynamics, %
	2003	2005	2007	2009	2011	2013	2014	
Plant growing	176091	168991	191838	173793	208854	212442	201960	+14,7
Livestock breeding	131929	136008	142374	136810	156635	168635	168806	+28,0
Other	21823	24228	26596	28127	30458	32078	32767	+50,2
Total	329843	329227	360808	338730	395947	413155	403534	+22,3

At the same time, according to the official website of the European Commission, the income of the EU member states in the field of agriculture in 2014 was approximately 147 billion EUR, which is almost 14 % more than in 2003. Indicators of EU agricultural income for the period 2003-2014 are presented in Figure 1.

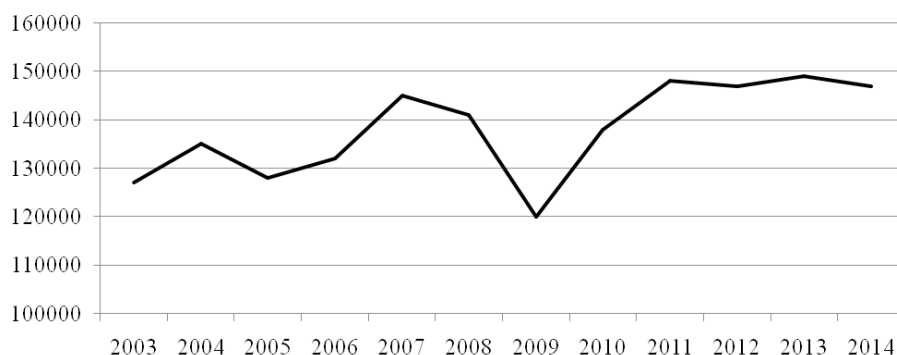
Among all the ways to promote the development of the agrarian sector, the most expensive and the most widespread are direct payments, which account for about 70 % of the total annual funding within CAP over the last years. Thus, in 2014 direct payments were paid 41 billion euro, representing 75 % of the total funding of 55 billion EUR (Fig. 2). The situation in 2013, when direct payments amounted to 40 billion EUR, with a to-

tal budget of 58 billion euro, i.e. 69 %, was slightly different.

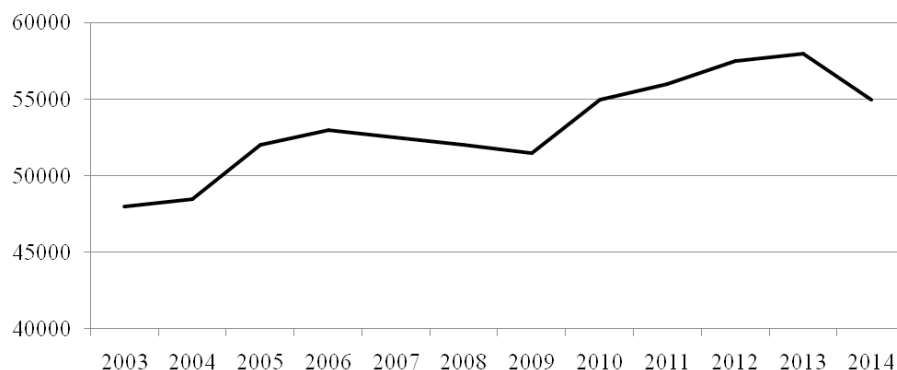
Such additional subsidies for farmers to take a significant share in the income of farmers in agriculture, which takes white she-thirds of total revenue in the EU agricultural sector. Table 2 shows the proportion of funding from foundations common agricultural policy first in total income of EU agriculture.

That is, in the period from 2003 to 2014, on average 40% of the total income in the agricultural sector was due only to subsidies from European budgets.

On average, in the EU member states in 2013, 250 EUR/ha was allocated for direct payments per year: the maximum was in Malta – 670 EUR/ha, the minimum – in Latvia – 80 EUR/ha. In 2014



**Figure 1. EU agricultural income for the period, million EUR**



**Figure 2. Total annual funding withing CAP, million EUR**



**Table 2. Share of CAP funding in the EU agriculture income.**

	Share of financing of agriculture,%						
	2003	2005	2007	2009	2011	2013	2014
Share of direct payments	23,6	26,6	24,8	31,7	27,0	26,8	27,9
The total share of CAP	37,8	40,6	36,2	42,9	37,8	38,9	37,4

this figure fell slightly to 230 EUR/ha per year [5].

But pay attention and that for such large subsidies needed to farm according to environmental and food's conditions that are sufficiently stringent.

Nevertheless, given the availability of such grants, one can make a hypothesis that direct payments have a significant impact on the formation of the value of agricultural land in the EU.

To assess the impact of the CAP on the formation of the cost of land, to compare the market value of land in Europe (which is about 15 000 EUR/ha) with the value determined by the capitalization of net operating or rental income. In addition, it is suggested that such a comparison be made on the example of the Netherlands as a high-income country and agricultural production.

According to the European Commission [6] by 2014 the value of arable land in the Netherlands was 57 000 EUR/ha.

Since support under the direct payments of the Common Agricultural Policy is a constant source of income (in the condition of fulfilling the set requirements), it is proposed to determine the value by the method of capitalization of net operating or rent income by the following formula:

$$C = N \div R_c + DP \div R_f, (1)$$

where:  $C$  - the cost of agricultural land EUR/ha;

$N$  - net operating income, EUR/ha;

$R_c$  - capitalization rate;

$DP$  - amount of direct payments under the CAP, EUR/ha;

$R_f$  - risk-free rate.

In 2014 income in the Netherlands from wheat totaled 1 925,7 EUR/ha, and the average income in Europe – 969,0 EUR/ha [9]; expenses amounted to 820 and 650 EUR/ha, respectively [8, 12]; CAP direct payments for 2015 reached 430 EUR/ha in the Netherlands and 266 EUR/ha – in Europe the average [7].

**Table 3. Initial data for calculating and comparing the cost of agricultural land in Europe and the Netherlands**

	EU	Netherlands
Yield, q / ha	42.5	91.2
Sales price, EUR / q	22.8	21.0
Costs of production, EUR / ha	650.0	820.0
Gross income, EUR / ha	969.0	1925.7
Direct payments of CA, EUR / ha	266.0	430.0
Capitalization rate,%	6.6	7.8
The risk-free rate,%	3.0	2.2
Market value of arable land, EUR / ha	15,000.0	57000,0
Cost calculated by the capitalization method, EUR / ha	13700,0	33720,5

According to the Rosenberg Real Estate Fund (*RREEF*) the average capitalization rate in Europe is about 6,6%, the Netherlands – 7,8%, and risk-free rate – 3,0 and 2,2%, respectively [13].

Calculated by the method of capitalization, the average cost of agricultural land in Europe is almost identical to the statistical data, while the value of land in the Netherlands, albeit much higher than the average European, but differs from the market.

This may be explained by the fact that, first of all, the authenticity and relevance of the source data may be questionable; and secondly, many other factors that affect the formation of the value of agricultural land (national agricultural policy, balance of supply and demand, etc.) were not taken into account.

However, such a cost-determining methodology makes it possible to understand the main sources of agricultural value formation in Europe, namely: income from agricultural production and support within the CAP.

It should be noted that in the calculation process, it was found that capitalized net operating income was only 35 % in Europe and 42 % in the Netherlands. The rest of the value is formed through grants within the framework of the Common Agricultural Policy.

### ***Conclusions.***

In addition, a significant proportion of farm income countries of the European Union comes from the common agricultural policy first, about 70% of these subsidies comes in the form of direct payments to farmers per annum per hectare of cultivated land. Much of these payments are independent, that is, they are not tied to productive output

and product prices, which ensures farmers confidence in the profit, regardless of yield or regional market conditions.

In turn, this reduces the risks of farming in Europe and increases the popularity and effectiveness of rural areas in the European Union.

Thus we can say that a significant part of the value of agricultural land in Europe forms the Common Agricultural Policy.

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**ОСОБЛИВОСТІ ФОРМУВАННЯ ВАРТОСТІ СІЛЬСЬКОГОСПОДАРСЬКИХ ЗЕМЕЛЬ В КРАЇНАХ ЄВРОПИ**

*Досліджено вплив Спільної аграрної політики (САП) на аграрний сектор Європейського Союзу (ЄС). Обґрунтовано особливості формування та проведено порівняння розрахункової (методом капіталізації чистого операційного або рентного доходу) та ринкової вартості сільськогосподарських земель в Європі та Нідерландах, зокрема.*

**Ключові слова:** землі сільськогосподарського призначення, вартість, ринок земель, Європейський Союз, Спільна аграрна політика.

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**ОСОБЕННОСТИ ФОРМИРОВАНИЯ СТОИМОСТИ СЕЛЬСКОХОЗЯЙСТВЕННЫХ ЗЕМЕЛЬ В СТРАНАХ ЕВРОПЫ**

*Исследовано влияние Совместной аграрной политики на аграрный сектор Европейского Союза. Обоснованы особенности формирования и проведено сравнение расчетной (методом капитализации чистого операционного или рентного дохода) и рыночной стоимости сельскохозяйственных земель в Европе и Нидерландах, в частности.*

**Ключевые слова:** земли сельскохозяйственного назначения, стоимость, рынок земель, Европейский Союз, Совместная аграрная политика.

## LEGISLATIVE ADMINISTRATION OF PUBLIC AFFAIRS AID IN THE FIELD OF HUMAN CONSUMPTION AS THE INSTRUMENT OF THE STATE POLICY

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*The article analyzes normative documents according to which economic incentives can become state aid, ways of developing European and national policies that allow the allocation of state aid for environmental protection and protected areas, and the promotion of biodiversity conservation on legal grounds.*

**Keywords.** *State aid, environmental land use, ecological tax, biodiversity conservation, protected areas.*

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### ***Analysis of recent research and publications.***

The system of economic instruments and the application of the principles of economic ecological theory in Ukraine were studied: O.E. Rubel, V.A. Tolkachov, O.M. Kolosok and others. The development and ways of improving the system of protected land use are explored in their works AM Tretyak, N.A. Tretyak. At the same time, the latest changes in the structure of the legislative field, adaptation to the European model of ecological and economic instruments for biodiversity conservation and support for environmental land use require the development of new approaches to the use of market and non-market mechanisms for economic stimulation of environmental protection measures.

**The purpose of the article** is to consider a set of environmental policy instruments to review the relevance of

state aid rules for economic instruments and their role in implementing environmental policies.

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

As researchers of economic instruments for biodiversity conservation point out, there is an urgent need to develop new tools for the conservation of biodiversity and ecosystem services. Despite numerous policy measures and tools developed during the long history of nature conservation, attempts have been ineffective in stopping biodiversity loss<sup>7</sup>.

One of the instruments of state policy in the European Community is «state aid» to economic entities, the basic principles of which are defined in the EU-based Founding Agreement. The procedure for granting and criteria for assessing the eligibility of state aid in the field of environmental protection is set out in the EU Guidelines on State aid

for environmental protection and energy 2014-2020. These recommendations establish special rules and regulations for state environmental aid in the EU member states and the countries of the European Free Trade Association (EFTA). The guidelines are reviewed every six to seven years, and the new rules were published on April 1, 2008, after the reform process for about two years.

The legal requirement to control the provision of state aid in Ukraine follows from a number of international obligations of Ukraine, in particular, the Association Agreement with the EU, which requires Ukraine during a certain transition period to implement a number of important measures for the introduction of a full-fledged control system that meets EU standards.

In accordance with the Law of Ukraine «On State Aid to Business Entities» (2014) 1, the Antimonopoly Committee of Ukraine (AMCU) has designated the authorized body for monitoring and control in the field of state aid in Ukraine. Since 2017, the Antimonopoly Committee should evaluate newly announced state support measures aimed at identifying state aid measures that are not compatible with the requirements of the new Law and bringing the current state aid measures in line with the Law. Thus, a national state aid control system will be brought in line with the EU state aid rules within a specified period.

Principles of state ecological policy in Ukraine and its rules of application are set forth in the Law of Ukraine «On the Basic Principles (Strategy) of the State Environmental Policy of Ukraine for the Period till 2020» of December 21, 2010 No. 2818-VI. This law provides for direct budget financing for the establishment of environmental monitoring systems, ensuring compliance with state

environmental standards, and also provides support and appropriate compensation for the costs of economic entities that implement environmental projects or improve the state of the environment.

In particular, one of the important principles enshrined in the national environmental policy is to stimulate business entities to modernize production and reduce the negative impact on the natural environment.

In accordance with the provisions of the Law «On State Aid», criteria should be developed for the provision of state aid for the environmental protection. In pursuance of these provisions, the Antimonopoly Committee of Ukraine elaborated a draft Decree of the Cabinet of Ministers of Ukraine «On Approval of Criteria for Assessing the Validity of State Aid to Business Entities for the Environmental Protection» and was published it on its official website.

The draft Decree stipulates that state aid for environmental protection may be provided in any form specified in Article 4 of the Law of Ukraine «On State Aid to Business Entities», in particular, subsidies and grants; grants; tax breaks, deferrals or installments of taxes, fees or other obligatory payments, etc.

One of the types of state aid for the protection of the environment, proposed in the draft Resolution is state aid in the form of reduction or exemption from environmental taxes.

It should be noted that budget funds for environmental protection measures are used taking into account the List of activities related to environmental protection measures approved by the Resolution of the Cabinet of Ministers of Ukraine of 17.09.1996 No. 1147 and on the basis of the Procedure for Planning and Financing of Environmental Protection Measures, approved by the order of

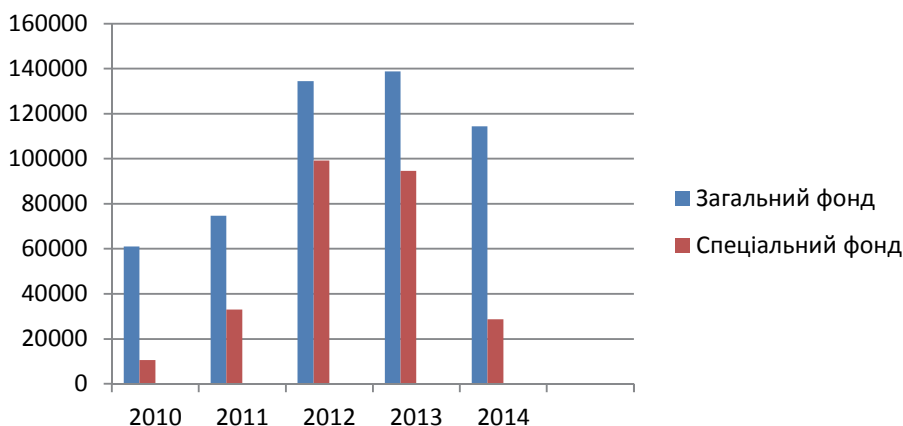
the Ministry of Ecology and Natural Resources of Ukraine dated June 12, 2015, No. 194 and registered with the Ministry of Justice of Ukraine on August 18, 2015 under No. 994/27439, where there is a clear definition of the customer of environmental protection measures.

The analysis of the legislative framework shows that the provisions set out in paragraph 11 of the draft Resolution (“State Aid in the form of reduction or exemption from environmental taxes”) are not consistent with Article 48 of the Law of Ukraine “On Environmental Protection”<sup>3</sup> and Article 4 of the Law of Ukraine “On state aid to economic entities”<sup>1</sup>, which stipulates granting of tax privileges, and not” exemption from environmental taxes “.

Environmental tax belongs to state taxes and proceeds from its payment are a source of financing for environmental and resource-saving measures (Article 47 of the Law on Environmental Protection<sup>3</sup>). The procedure for the enrollment of the environmental tax and its use is determined by the Budget Code of Ukraine<sup>2</sup>, and the procedure for the establishment and commissioning is the

Tax Code of Ukraine. Environmental tax is charged for the emission of pollutants into the atmosphere by stationary sources of pollution, the discharges of pollutants directly to water facilities and the disposal of waste (except for the placement of certain types (classes) of waste as secondary raw materials, placed in their own territories (objects) sub economic objects), that is, for pollution of the natural environment, has both a regulatory and a stimulating character for enterprises, and liberating or reducing it is inappropriate. Taking into account that financing of all types of protected areas in Ukraine and institutions and objects of the nature reserve fund is carried out at the expense of state and local budgets, the reduction of environmental tax revenues as a result of the release of business entities from its payment will lead to a catastrophically low level of support for the environmental protection land use and significant biodiversity loss.

A clear example of the results of reducing the support for environmental measures can be the analysis of the dynamics of funding for the nature reserve fund for the period 2010 - 20145.



**Fig. 1. Amount of allocation of funds for the maintenance and implementation of environmental protection measures in nationally designated PAs subordinated to the Ministry of Ecology and Natural Resources of Ukraine (ths. UAH).<sup>5</sup>**



According to the Law of Ukraine “On Amendments to the Law of Ukraine” On the State Budget of Ukraine for 2014 “, expenditures on the general fund amount to 114451.4 thousand UAH, or 87% of the allocations, which made it impossible for the proper functioning of the 41 establishments of the NFP.

The Law of Ukraine “On Amendments to the Tax Code of Ukraine and some laws of Ukraine (regarding tax reform), “the environmental tax (on fuel) has been transformed into an excise tax.

The Law of Ukraine “On Amendments to the Budget Code (on the reform of intergovernmental fiscal relations) increased the percentage of environmental tax from 35 to 80 percent to local budgets, and reduced to 65 percent to 20 percent of the state budget. The funds from the payment of the environmental tax were not credited to the special funds of the relevant budgets (State and local environmental funds), but to the general funds of the corresponding budgets. Thus, the environmental tax, with the adoption of such changes, ceased to be an integral part of the special funds of the state budget, as violated Art. 47 of the Law of Ukraine “On Environmental Protection”, as well as he lost his function as a special purpose. The changes introduced indicate that the environmental tax funds are not tied to expenditures and will focus not only on programs of environmental protection measures of local importance, but also on measures of social and economic development.

Turning to the European experience of using such a political instrument of the state as the provision of state aid for the protection of the environment, it should be noted that the conservation of biodiversity is classified as a service of pan-European public interest.<sup>7</sup> Environmental tax is the main regulatory ecolog-

ical and economic instrument of public policy that meets the “polluter pays” principle. The introduction of a full exemption from environmental taxes may lead to distortions of competition and deprive the state of the regulatory instrument for environmental policy. The proposed public attention to the draft Decree needs to be substantially refined, brought in line with the current legislation and amended to exclude the exemption from environmental tax of economic entities in order to avoid worsening of the ecological state of watercourses in the country and as a result the loss of biodiversity.

### **Conclusion.**

Based on the foregoing, it can be concluded that the introduction of the possibility of exempting economic entities from environmental tax can be attributed to a “harmful incentive” that may have a discriminatory character for competition and lead to a reduction in biodiversity due to deterioration of environmental land use. There is an urgent scientific and practical task to find alternative means of stimulating the implementation of environmental protection measures in the new market economic conditions.

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**Демиденко Л.Г.**

**ЗАКОНОДАВЧЕ РЕГУЛЮВАННЯ ДЕРЖАВНОЇ ДОПОМОГИ У ГАЛУЗІ ПРИРОДОХОРОННОГО ЩЕЗЕМЛЕКОРИСТУВАННЯ ЯК ІНСТРУМЕНТ ДЕРЖАВНОЇ ПОЛІТИКИ**

Проаналізовано нормативні документи, за якими економічні стимули можуть стати державною допомогою,

визначено шляхи розробки європейської та національної політики, які дозволять виділення державної допомоги на охорону навколишнього середовища та природоохоронне землекористування, стимулювання збереження біорізноманіття на законній підставі.

**Ключові слова:** державна допомога, природоохоронне землекористування, екологічний податок, збереження біорізноманіття, природоохоронні території.

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**Демиденко Л.Г.**

**ЗАКОНОДАТЕЛЬНОЕ РЕГУЛИВАРОВАНИЕ ГОСУДАРСТВЕННОЙ ПОМОЩИ В СФЕРЕ ПРИРОДООХРАННОГО ЗЕМЛЕПОЛЬЗОВАНИЯ КАК ИНСТРУМЕНТ ГОСУДАРСТВЕННОЙ ПОЛИТИКИ**

В статье проанализировано нормативные документы, в соответствии с которыми экономические стимулы могут стать государственной помощью, определены пути разработки европейской и национальной политики, которые позволяют выделить государственной помощи на охрану окружающей среды и природоохранное землепользование, стимулирование сохранения биоразнообразия на законных основаниях.

**Ключевые слова:** государственная помощь, природоохранное землепользование, экологический налог, сохранение биоразнообразия, природоохранные территории.