

DIGITALIZATION OF LAND INFORMATION: PROBLEMS AND PROSPECTS FOR TERRITORIAL COMMUNITIES

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The article substantiates the need to update the data of land cadastral information in the effective management of the land-territorial complex of communities in Ukraine. The rights and obligations of territorial communities in the use of land resources within their boundaries have been established. The legal framework is considered, on the basis of which the right to use and dispose of state-owned lands in territorial communities is formed.

The problems faced by the newly formed territorial communities in the management of land resources are analyzed. Priority steps for information accessibility have been established. The actual areas of work of the land department for the digitalization of land information in territorial conditions are determined.

The positive aspects of the digital possibility of territorial communities in Ukraine are highlighted. The main problems of introducing digital registers of land resources into the activities of territorial communities are identified.

Prospects are considered and measures aimed at overcoming the problems of digitalization of land information are proposed. Attention is focused on the need to create a single land registry in each new community, which in turn will improve land management and increase revenues to the local budget. The relevance of introducing open registers of information on land resources of territorial communities to attract investment is substantiated.

Key words: *territorial community, digital ability, digitalization, land information, land asset, visualization, land accounting.*

Formulation of the problem.

Ukraine has implemented a reform of decentralization of power, as a result of which local authorities have been given powers and territories to govern within the newly formed territorial communities. The most important resource for communities is land, now all lands and land plots outside settlements have been transferred to communal ownership on the basis of the Law of Ukraine № 1423 of 27.05.2021. Exceptions are state-owned land plots that have already been registered. As a result of this reform, 1439 newly formed territorial communities were created [1].

Territorial communities have the opportunity to fully manage their own resources: determine the share of land use and other natural resources, address economic, social, financial, environmental, cultural heritage and other resources through comprehensive spatial development plans. In this way, local authorities will be able to ensure better control and effective management of the community's land resources, which will allow them to significantly increase revenues to local budgets from land and derived activities, which will improve the well-being of the local population.

The main problem of territorial communities today is the legally established boundaries of the community and the lack of relevant information about the lands that have passed into their possession. There is no single system of accounting for land resources of territorial communities and their information availability.

Filling the register with the land fund at the local level with up-to-date information is currently the main issue for further rational and efficient use of land resources. Creating an investment-attractive environment and transparency in the field of land relations.

Digitization of land information, its reliability and accessibility is one of the important issues that arose in the process of reforming land relations and

decentralization of power in Ukraine and needs to be addressed as a priority among the current challenges.

Analysis of recent research and publications.

The issues of digital capacity, reliability and availability of information in local communities have been studied by many leading scholars.

O. Yevsyukova, in her work, focused on the effectiveness of the functioning of territorial communities through the introduction of new digital technologies [2].

N. Zabarna and N. Kovda studied the problems and prospects of land reform in the decentralization of power, where the authors reveal the problem of rational mechanism of state management of land resources and the formation of effective land relations in Ukraine [3].

V. Hirnyak scientifically substantiated the importance of efficient use of land resources of the city, which directly depends on land regulation, namely the identification of areas that are not used or used irrationally and their further redistribution for local government [4].

V. Gorlachuk, O. Klymenko in their scientific work reveal the problem of efficient and rational use of land resources in communities due to powerful economic resources, due to land reform [5].

Of particular interest is the article of experts of the Financial Monitoring Group of the Central Office of Reforms at the Ministry of Community and Territorial Development of Ukraine, which provides analytical data on the receipt of funds to the local budget from land lease [6].

The aim of the study. Analyze the state of filling of land information registers in territorial communities and identify the main problems and prospects in the implementation of digitalization and information accessibility.

Materials and methods of scientific research:

The theoretical method, monographic method, empirical method, expert method, modeling and generalization methods were used during the research.

Using the monographic method, the scientific works of scientists: O. Yevsyukova, N. Zabarna and N. Kovda, V. Girnyak, V. Gorlachuk and O. Klymenko were studied. Empirical method - the state of filling of land registers with data in territorial communities of Ukraine is analyzed, projects of digitization of land information of territorial communities in Sum region are analyzed.

Using the expert method, the responses of the heads of territorial communities on the relevance of the introduction of a single digital register of land resources on the ground for effective and efficient disposal of community lands.

Based on the materials of the State Land Cadastral and the State Register of Real Property Rights, the prospects for the introduction of a single digital register of land resources of territorial communities are modeled. The directions of work of land departments of territorial communities on supplementing the register with up-to-date land information are generalized.

Results of research and discussion.

During the period of reforming land relations and decentralization of power, territorial communities have acquired the authority to dispose of state-owned lands (within their territories). executive power will be empowered to exercise state control over the use and protection of land.

These changes are important for communities, given that they have oversight functions within the community to enforce land legislation. Every community must understand all aspects of land reform and exercise the powers entrusted to it [1].

An important element of decentralization is the transformation of land into a capable resource for socio-economic development of the community and obtaining up-to-date and complete information on land resources in the territorial community. Up-to-date data on land areas, land composition, boundaries and configuration provide an opportunity to rationally and efficiently manage community lands, anticipate revenues, reasonably accrue land taxes, calculate rents, promote investment and develop a transparent land market. It is necessary to

understand which land plots are used inefficiently and irrationally, without adhering to the intended purpose in violation of the law.

Analyzing the data from the site: <http://decentralization.gov.ua/areas>, on the formation of a new administrative system of the country, we can confidently say that the newly created territorial communities are located unevenly in the regions of Ukraine and have different land resources under their control. The transition from state-owned to communal and the subordination of village and settlement councils to the management of a single community has complicated the work of local authorities, which do not have complete information about the land they manage. A partial solution to the problem is the Territorial Map, which helps local communities understand their boundaries and see the territory. However, the available open information is not enough for quality resource management (Table 1).

Table 1. Information on land resources
from state land registers

Resource	Information in the public domain	Which information is missing
State Register of Real Property Rights	Owner, purpose, location, form of ownership, type of use, date and number of registration of the right, user, restrictions on use, regulatory monetary valuation	Term of the contract, expiration date, percentage of land ownership
State Land Cadastral of Ukraine	List of real estate objects registered for a natural or legal person	Area, date of registration, term of the contract, date of expiration of the contract, purpose, percentage of ownership, land, rent

After assessing the availability of up-to-date data on community land resources, it was found that there is not enough information in the public domain to establish quality accounting and monitoring of land resources in communities.

The disadvantage of working with open data of state registers is that these registers are in different state services, and to check the land you need to contact each service separately. Accordingly, the registration procedure takes time and some registers are paid, so it is necessary to pay for the order after the request. The speed of response to the request will also be different.

One of the main state registers for land assets of Ukraine is the Public Cadastral Map, but not all information presented in the public domain is sufficient for local communities.

Another important source of data on land is the State Register of Real Property Rights. Information on registered rights to immovable property and their encumbrances, which is in the State Register of Real Rights to Immovable Property, is open and publicly available.

Analyzing the state registers, which are the main source of data, it is clear that they do not provide complete information on land resources, as their database is formed in accordance with the design and registration of land.

Some of the important information about the land fund of the territorial community is carried by the registers of territorial communities. These can be old share maps, master plans, copies of leases and other materials related to land and its users within the community. Therefore, this information must also be taken into account in the formation of a single register of data on land assets of the community.

An alternative to such disparate information on the accounting of land plots located within the territorial community is the creation of a single register - the Land Database of the territorial community.

The implementation of this register will allow efficient and rational use of land resources, namely:

- receive information on the state of land assets in terms of village councils;

- receive information on the lease terms of land;
- ensure the implementation of land ownership;
- ensure compliance of the area with documents and maps;
- to improve the system (administration) of payments for land;
- to form an effective system of improving the quality of state regulation of land relations;
- to ensure the implementation of land management measures as a tool for regulating land relations;
- ensure the formation and development of the land market;
- ensure the formation of restrictions on land use related to ecological balance and land protection;
- ensure the implementation of land use optimization and create an investment-attractive climate;
- ensure an increase in local budget revenues.

The next step in digitizing information on community land resources is the introduction of a geographic information system (GIS).

Such a geographic information system for community land management is an innovative cartographic platform that collects data from government and cartographic materials for visualization and formation of community land fund analytics. GIS contains information about the owners and users of sites, their status, regulatory monetary valuation, the term of leases and much more [8].

The proposed sequence of actions to optimize the work of the land department of territorial communities using GIS is as follows, Fig.1



Fig.1 Sequence diagram for optimizing land management

Digitization of the land fund of the territorial community with the use of geographic information systems allows obtaining relevant information in the territorial community in a relatively short time. Further use of the GIS product of communities will replenish the budget, as about 10% of revenues come from land.

Territorial communities where innovative digital methods of maintaining the land register have already been implemented effectively manage land resources and control budget revenues. One such community is the Sadivka Territorial Community in the Sum Region. Digitization of land assets, which made it possible to identify shortfalls from community lands. During the project implementation, AGROPRAVO found that due to the lack of information on concluded lease agreements on lands with an area of 1,266.75 hectares, which creates preconditions for annual losses in the amount of UAH 926,091.23. The calculation was carried out on lands without registered lease rights with an average normative monetary valuation of arable land in the region of 35,200 UAH / ha and a rent percentage of 12% per year in terms of land of various forms of ownership. (Fig.2). [9]

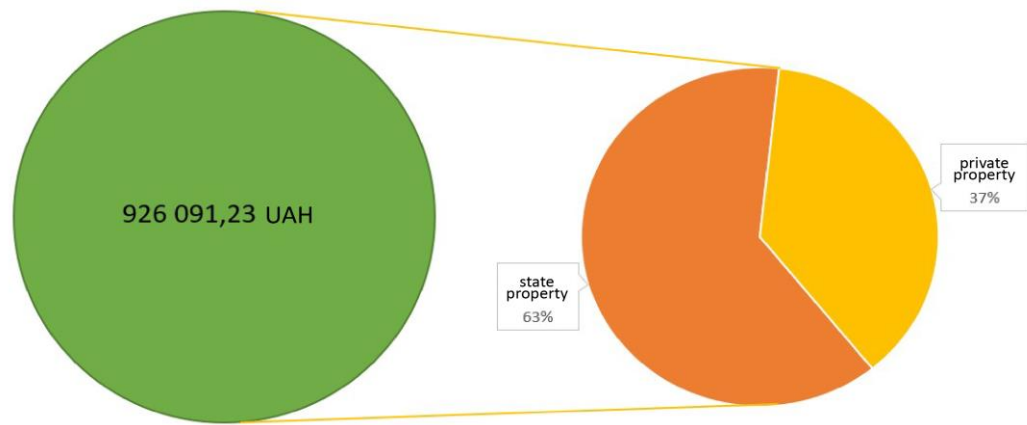


Fig.2 Lack of funds on the lands of the Sadivka territorial community of Sum region *

* author's interpretation of data from the site <https://agropravo.com/blog>

It should be noted that an important step to improve such situations is to define coordinated community boundaries and create an effective resource management system. Usually, the boundaries of the village or town council are reflected purely on "paper". Nowadays, modern technologies allow keeping digital records of land resources. Many agricultural enterprises have already attracted the latest technologies in land asset management, they are accessible and easy to use. Therefore, one of the urgent tasks of the newly formed territorial communities is to create online maps of their territories and current borders. Such digitalization is a reflection not only of borders, but also of neighborhoods and zones. It is good if the system also includes the former boundaries of communities, districts, villages and settlements - this gives the opportunity to cooperate with those areas that are nearby.

In summary, we can say that data systematization is the basis for monitoring and quality planning. Open data complicates the manipulation of the community budget and brings funds to the budget of the territorial community. This is an integral part of the automated process of collecting, accounting, organizing and using data on land resources of the community, as well as the main prerequisite for the formation of open data [10].

Open data can be used not only for management decisions, but also as a basis for transparency of management processes to attract investment. An open

budget also helps you make choices, as it is a key source of data on the state of the community's finances. It is also important that the investor immediately receives all the information needed to make investment decisions, and the collection of such information usually takes a lot of time and resources [11].

Conclusions. The implementation of land reform and the decentralization of power have given a significant impetus to the creation of affluent communities and their economic development.

However, the study identified problems in the field of digitization of information needed in land management, such as: poor land accounting, outdated data, storage of information on land on various media, including paper, inaccurate or outdated information under leases. All this becomes an obstacle to a quality dialogue with stakeholders in the formation of market proposals.

The only direction on the way to efficient and rational use of land resources is the introduction of a unified register of land information of territorial communities. Digitization of information on the state of land resources and systematization of open data will provide an opportunity to qualitatively analyze the current state of land, monitor changes, control land management and implement innovative approaches in the field of management.

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**ЦИФРОВІЗАЦІЯ ІНФОРМАЦІЇ ПРО ЗЕМЕЛЬНІ ДІЛЯНКИ:
ПРОБЛЕМИ І ПЕРСПЕКТИВИ ДЛЯ ТЕРИТОРІАЛЬНИХ ГРОМАД**

У статті обґрунтовано необхідність актуалізації даних земельно-кадастрової інформації при ефективному управлінні земельно-територіальним комплексом громад в Україні. Встановлено права та обов'язки територіальних громад при використанні земельних ресурсів в їх межах. Розглянуто нормативно-правову базу, на основі якої сформовано право користування та розпорядження землями державної власності у територіальних громадах.

Проаналізовано проблеми з якими стикаються новоутворені територіальні громади при управлінні земельними ресурсами. Встановлено першочергові кроки для інформаційної доступності. Визначені актуальні напрямки роботи земельного відділу із цифровізації інформації про земельні ділянки у територіальних громадах.

Виділено позитивні сторони цифрової спроможності територіальних громад в Україні. Визначено основні проблеми впровадження цифрових реєстрів земельних ресурсів у діяльність територіальних громад.

Розглянуто перспективи та запропоновано заходи, направлені на подолання проблем на шляху до цифровізації інформації про земельні ділянки. Акцентовано увагу на необхідності створення єдиного земельного реєстру в кожній новоствореній громаді, що в свою чергу поліпшить управління земельними ресурсами та збільшить надходження до місцевого бюджету. Обґрунтовано актуальність впровадження відкритих реєстрів інформації про земельні ресурси територіальних громад як основа для залучення інвестицій.

Ключові слова: територіальна громада, цифрова спроможність, цифровізація, земельна інформація, земельний актив, візуалізація, облік земель.