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# MASS LAND VALUATION SERVES AS A PREREQUISITE FOR OPTIMIZING THE TAXATION SYSTEM IN UKRAINE

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***Abstract.*** *The article highlights the issue of multiple tax base systems. It analyzes that according to existing international mass appraisal standards, the market value should serve as the tax base. In turn, determining the market value should be based on analyzing the most efficient use. The authors emphasize that the available information in state registers is insufficient to meet all the requirements for the integrity and quality of input data for mass appraisal systems. Thus, attention is drawn to the necessity of a comprehensive approach to implementing a cadaster system, including the use of the LADM standard. This standard would, on the one hand, systematize the exchange between existing state registers, and on the other hand, serve as a basis for developing a computerized mass appraisal system considering the requirements for CAMA. Overall, the authors believe that implementing a land mass appraisal system in Ukraine is an important step towards creating a transparent and fair tax system as a key element of economic recovery and a source of revenue for local budgets in the context of developing market land relations.*

***Keywords:*** *Assessment Information Model, Mass Land Assessment System, Land Administration Domain Model (LADM), Real Estate Taxation, Computer-Assisted Mass Appraisal (CAMA)*

**Problem statement.** The land tax is an important source of revenue in many countries seeking to increase local income, improve the practice of state management of land resources, and determine the value of state assets.

The World Bank, together with the Food and Agriculture Organization of the United Nations (FAO), has developed voluntary guidelines that consider assessment and taxation as key elements in real estate market management. These guidelines underscore the crucial role of assessment and taxation in achieving the social, economic, and environmental goals of sustainable development, as well as ensuring effective financing and management at decentralized local levels.

The relevance of implementing a mass appraisal system in Ukraine is confirmed by the introduction of a pilot project for conducting mass land appraisal aimed at addressing the issue of taxing land parcels as real estate objects.

The implementation of a mass real estate appraisal system holds strategic importance for the sustainable development of Ukraine because it is through mechanisms determining fair property values and introducing variable tax rates that not only can local budgets be filled but also aid in the recovery of territories affected by military actions.

**Analysis of the latest scientific research and publications.** The majority of domestic scientific articles focus on the need for developing mass real estate assessment systems, while little attention is given to their implementation.

For instance, in his scientific work, Koshelev A.O. [10] highlights the relevance of transitioning from normative to market value during the taxation of land parcels. The article by Bondar M.I. [3] analyzes international experience in mass real estate assessment and emphasizes the necessity of implementing such a system in Ukraine. Furthermore, the research results of Kirichek Yu.O. and Lando Ye.O. [9] have demonstrated the feasibility of using mass assessment models in the real estate market in Ukraine. At the same time, Khomenko L.M. and Glukhova V.I. [14] discuss the significance of property tax as an additional source of revenue for the budget.

Foreign experience in implementing mass assessment systems includes stages of development, implementation, and utility analysis, as evidenced by the experiences

of countries such as Slovenia [6], Lithuania [2], and Estonia [1], which have relatively recently introduced mass assessment systems.

Therefore, there is a need today to justify the implementation of a mass land assessment system not only in terms of its potential benefits but also by further examining the possibility of its implementation in our country.

**Materials and methods of scientific research.** The following methods of scientific inquiry were applied to achieve the research goal: monographic, analysis, and synthesis. The monographic method involved studying scientific works dedicated to the implementation of mass appraisal systems in Ukraine and worldwide. The analysis method was used to study existing standards, methodologies, and recommendations regarding the construction of such systems, as well as limitations on their application in Ukraine. The synthesis method was employed to substantiate the necessity of implementing a modern mass appraisal system that takes into account both international standards for appraisal and mass appraisal, as well as the standards of the LADM information models.

**The purpose of the study.** To analyse the prerequisites for the introduction of a system of mass land valuation in Ukraine and to highlight potential obstacles and problematic issues on the way to its implementation.

**Research results and discussion.** Property tax is exclusively a local tax in EU countries, although its maximum rates are determined at the central level. The taxable objects include land and structures. In the United Kingdom, this is the primary local tax, which has the highest share in revenue structure and includes land fees. The share of this tax in local budget revenues ranges from 10% in Denmark, Finland, Greece, and Luxembourg to 50% in Belgium, Latvia, Lithuania, Poland, Slovakia, Slovenia, Spain, and almost 100% in the United Kingdom, Estonia, and Ireland [11].

In Ukraine, property tax is also an important instrument for filling local budgets. It includes tax on immovable property (excluding land), transport tax, and land fee, consisting of land tax and land lease payment. However, in 2022, the total revenue from this tax decreased by 14.9% to 36.8 billion UAH, and its share in the structure of local taxes and fees decreased from 48.1% to 43.6% compared to the previous year.

In turn, in the structure of property tax in Ukraine, the share of land fees is over 80% [13].

Therefore, there is a need to find the most optimal way to determine the size of this tax. On the one hand, it should be as high as possible to cover local expenditures, and on the other hand, it should be as fair as possible to stimulate the reduction of shadow economy in paying this type of taxes.

However, complex tax systems are based not only on legislation but also on models and methodologies for assessing land as real estate. Therefore, the development of a modern land cadastre system model, the adoption of standards, and the methodology for calculating the value of land are fundamental for the construction and implementation of a mass land assessment system in Ukraine.

Mass assessment, according to the standard for mass assessment of real estate [7], is the process of assessing a group of properties as of a given date using common data, standardized methods, and statistical testing.

The implementation of mass real estate assessment aims to address several key tasks and challenges:

- transparency of the real estate market: Mass assessment creates clear and objective criteria for determining the market value of property, promoting transparency in the real estate market.
- efficient taxation: The mass assessment system helps authorities determine tax obligations based on the real value of property, ensuring greater fairness in the distribution of financial burden among property owners.
- urban development management: Knowledge of real estate prices allows relevant experts and authorities to effectively plan urban development and infrastructure projects according to the needs of the population and market conditions.
- fighting corruption: An objective mass assessment system helps prevent corruption in the real estate assessment sphere by reducing the possibility of interference by officials and other entities in the process of determining property value.

- increasing investment attractiveness: Objective real estate assessment can make the market more attractive to investors as they can obtain reliable information about the value of property and its potential for value growth.
- ensuring economic stability: A clear mass assessment system can help avoid overheating the real estate market and ensure stable development of this economic segment.

The fundamental question during the development of a mass appraisal system is the selection of the type of value to be determined. According to existing legislation, land taxpayers include land plot owners, owners of land shares (shares), and land users. In turn, the taxable objects include land plots that are owned or used and land shares (shares) that are owned [8].

The tax rate for land plots, for which normative monetary valuation has been conducted, is set at no more than 3% of their normative monetary valuation. Specifically, for land of general use, the rate is set at no more than 1% of its normative monetary valuation. For agricultural land, the rate is set at no less than 0.3% and no more than 1% of its normative monetary valuation. For forest land, the rate is set at no more than 0.1% of its normative monetary valuation.

At the same time, the tax base is determined by the normative monetary valuation of land plots, taking into account the indexing coefficient for land plots for which normative monetary valuation has been conducted, as well as the area of land plots for which normative monetary valuation has not been conducted. For residential real estate objects, the tax base is determined by the area and a percentage of the minimum wage [12].

The tax base for the alienation (sale or transfer) of real estate properties (commercial and residential buildings, land plots) is their market value. However, for agricultural land plots, the tax base is the normative value if it exceeds the market value.

Thus, we can observe a significant variability in tax bases, depending on the type of property and the taxation operation (annual tax or tax on purchase and sale). In our view, this variability leads to several negative consequences, including potential

losses in local budgets, a lack of incentives for real estate market growth in depressed areas, and worsening social aspects due to uneven tax burdens among different population groups.

Therefore, there is a need for all objects and transactions to apply the market value, as determining the market value most accurately corresponds to the type of value specified in the standard for mass appraisal of real estate [5].

Another important aspect for implementing mass appraisal is the formation of a modern land administration system, which includes functions of a database, calculation model, electronic service for providing administrative services related to taxation, cadastre management, and real estate transactions, as well as serving as a visual source that facilitates transparency in cadastre management.

There is a clear definition of such a system called the Land Administration Domain Model, the requirements for the implementation of which are specified, among others, in ISO 19152:2012 Geographic Information and ISO/CD 19152-4 (Valuation Information). The implementation of this model also helps address the issue of exchanging data on land plots, which is a key factor in determining their value.

The implementation of this model also allows addressing the issue of exchanging data on land plots, which becomes more relevant in light of the provisions stated in the Resolution of the Cabinet of Ministers of Ukraine dated October 13, 2023, No. 1078. According to the mentioned Resolution, the developed system for mass land valuation in Ukraine should be integrated with the software of the State Land Cadastre and be based on information from the State Register of Property Rights to Real Estate. As of the beginning of 2024, in Ukraine, automated exchange of information regarding land plots is carried out using the following information systems.

- Ministry of Justice of Ukraine - State Register of Rights;
- State Service of Ukraine for Geodesy, Cartography and Cadastre - State Land Cadastre.

The body responsible for maintaining the State Land Cadastre, while simultaneously conducting state registration of a land plot, provides the State

Registration Authority with information about registered land plots contained in the State Land Cadastre, namely:

- state registration of the land plot (date of state registration, name of the authority that performed such registration);
- cadastral number, area, location of the land plot;
- cadastral plan of the registered land plot in electronic (digital) form.

At the same time, it is worth noting that the standard for mass land valuation specifies an indicative list of information necessary for conducting mass land valuation, namely:

- land plot area;
- availability of engineering communications;
- location;
- recreational potential;
- external inconveniences (such as traffic, noise, proximity to industrial buildings).

Comparing the list of information subject to exchange between state registers and the list specified in the mass appraisal standard for land plots, it can be concluded that the list of parameters in state registers is incomplete. In particular, state registers mostly lack information regarding existing engineering networks, as well as information about factors influencing the most efficient use of the plot, such as the level of environmental development and potential development. It is worth noting that according to paragraph 13 of National Standard No. 1 approved by the Cabinet of Ministers of Ukraine on September 10, 2003, No. 1440: «The most efficient use of the appraisal object is taken into account for determining the market value».

Thus, there is a pressing need for the implementation of the LADM standard and the development of an appraisal information model based on it, which will serve as the foundation for the development of a mass appraisal system in our country.

It is worth noting that the success of any mass appraisal system based on CAMA (computer-assisted mass appraisal) depends on the reliability of data. Essential data elements include ownership rights, references to tax rates, current and most efficient

use (zoning), physical and economic characteristics, engineering infrastructure, sales data, income and expenditure data, and other relevant market data. The system should ensure efficiency in data collection, storage, maintenance, and security. Important factors in building an effective system include:

• users' ability to determine which data elements to collect and maintain;

• the system's capability to perform edits to ensure data integrity;

• the ability to update records at least during current and future assessment years simultaneously;

• development of provisions for password protection and data backup;

• the capability to track the latest changes regarding property rights, including what, when, and by whom they were amended.

**Conclusion.** The implementation of a mass land appraisal system is an extremely relevant issue for the development of Ukraine. It provides objective criteria for determining the market value of land ownership and contributes to optimizing the taxation system, making these processes more transparent and objective.

The process of implementing a mass land appraisal system should be comprehensive and systematic. Therefore, during development, it is necessary to consider the requirements imposed on mass appraisal systems and land administration systems. Thus, the foundation for the mass appraisal system should be the development and implementation of LADM with an appraisal module, as well as adjustments to the regulatory framework for implementing CAMA (computer-assisted mass appraisal).

Based on this, the aforementioned measures for implementing mass land appraisal will enable the creation of a transparent and fair basis for taxing land parcels as real estate objects based on their actual market value.

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## *МАСОВА ОЦІНКА ЗЕМЕЛЬ ЯК ПЕРЕДУМОВА ОПТИМІЗАЦІЇ СИСТЕМИ ОПОДАТКУВАННЯ В УКРАЇНІ*

***Анотація.*** *В даній статті авторами висвітлюється проблематика множинності баз оподаткування. Проаналізовано, що згідно наявних міжнародних стандартів з масової оцінки, в якості бази оподаткування повинна виступати саме ринкова вартість. В свою чергу, визначення ринкової*

*вартості повинно ґрунтуватися на аналізі найбільш ефективного використання. Автори підкреслюють, що наявної інформації у державних реєстрах не достатньо, щоб відповідати усім вимогам, які висуваються до цілісності та якості вхідних даних для систем масової оцінки. Таким чином, акцентується увага на необхідності комплексного підходу до впровадження кадастрової системи, включаючи використання стандарту LADM, яка б з одного боку систематизувала обмін між наявними державними реєстрами, а з іншого виступила б базисом для розробки комп'ютеризованої системи масової оцінки з урахуванням вимог, що висуваються до CAMA. Загалом, автори вважають, що впровадження системи масової оцінки земель в Україні є важливим кроком на шляху до створення прозорої та справедливої системи оподаткування як ключового елементу відновлення економіки та джерела наповнення місцевих бюджетів в контексті розвитку ринкових земельних відносин.*

***Ключові слова:*** *оціночна інформаційна модель, система масової оцінки земельних ділянок, Land Administration Domain Model (LADM), оподаткування нерухомості, CAMA.*