

## ЕКОНОМІКА ПРИРОДОКОРИСТУВАННЯ ТА ОХОРОНИ НАВКОЛИШНЬОГО СЕРЕДОВИЩА

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### TERRITORIAL DEVELOPMENT OF LAND USE IN THE REGION: EXPERIENCE OF COASTAL REGIONS OF CHINA<sup>1</sup>

*The necessity of ensuring the territorial development of land use is proved. The relevance of substantiating the experience of ensuring the territorial development of land use in the regions of China is determined. The purpose of the study is to determine the theoretical base and research experience in ensuring the territorial development of land use in coastal regions of China. The objectives of the study in the context of achieving the goal are: substantiation of theoretical and methodological approaches to the determination of the territorial development of regional land; identification of the peculiarities of ensuring the territorial development of the territory of land, taking into account the experience of coastal regions of China. Given the theoretical basis for determining the territorial development of the use of land in the regions, taking into account the features of the functioning of coastal cities, the territorial development model, where spatial, urban, investment and environmental factors are determined, forms the appropriate quantitative basis and applies modern information systems. The necessity of developing a high-quality innovative technology to ensure the territorial development of the use of land in the regions is explained, it connects system spatial, urban planning, investment and environmental factors, modern methods and models, geographic information tools, which is a geofactorial analysis. The analysis has identified spatial, urban, investment and environmental factors, established criteria for their selection. The model of territorial development is proposed, given the experience of land use in coastal regions of China.*

**Keywords:** territorial development, land use of regions, coastal areas of China, model, technology.

**JEL classification:** C14, C19.

### ТЕРИТОРІАЛЬНИЙ РОЗВИТОК ВИКОРИСТАННЯ ЗЕМЕЛЬ РЕГІОНУ: ДОСВІД ПРИМОРСЬКИХ РАЙОНІВ КИТАЮ

*Доведена необхідність забезпечення територіального розвитку використання земель. Визначена актуальність обґрунтування досвіду забезпечення територіального розвитку використання земель регіонів Китаю. Метою дослідження є визначення теоретичної бази та дослідження досвіду забезпечення територіального розвитку використання земель приморських районів Китаю. Завданнями дослідження у контексті досягнення мети є: обґрунтування теоретико-методичних підходів до визначення територіального розвитку використання земель регіонів; виявлення особливостей забезпечення територіального розвитку використання земель, враховуючи досвід приморських районів Китаю. Враховуючи теоретичний базис визначення територіального розвитку використання земель регіонів, враховуючи особливості функціонування приморських міст, особливого значення мають модель територіального розвитку, де*

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визначаються просторові, містобудівні, інвестиційні та екологічні чинники, формується відповідний кількісний базис та застосовуються сучасні інформаційні системи. Обумовлена необхідність розробки якісної інноваційної технології забезпечення територіального розвитку використання земель регіонів, що пов'язує системні просторові, містобудівні, інвестиційні й екологічні фактори та сучасні методи і моделі, геоінформаційний інструментарій – геофакторний аналіз. У результаті аналізу визначені просторові, містобудівні, інвестиційні й екологічні фактори, встановлені критерії для їх відбору. Запропонована модель територіального розвитку, враховуючи досвід використання земель приморських районів Китаю. Для забезпечення територіального розвитку землекористування в регіонах використовуються обґрунтовані методи і моделі його визначення та оцінки. Це дозволило розробити методологічний підхід до комплексної оцінки територіального розвитку землекористування в регіонах як основу теоретико-методологічної платформи, заснованої на: інформаційно-аналітичному забезпеченні, багаторівневій системі діагностики просторових, містобудівних, інвестиційних та екологічних факторів, методологічних та аналітичних процедурах, з можливістю варіативного моделювання територіального розвитку. Технічна доцільність методологічного підходу визначається: формуванням комплексу санаторно-курортних, містобудівних, інвестиційних та екологічних факторів, побудовою багаторівневої діагностичної системи показників, їх оцінкою на основі сучасних методів і розробкою математичних моделей.

**Ключові слова:** територіальний розвиток, використання земель регіонів, приморські райони Китаю, модель, технологія.

**Introduction.** At the present stage, the importance of ensuring the territorial development of land use is growing. The solution to this complex issue is determined at the regional and state levels, taking into account spatial, urban, investment and environmental features and characteristics. The increase in the efficiency of land use is one of the important issues for ensuring the territorial development of both regions and the state as a whole. The People's Republic of China has shown significant growth over the past decades. In particular, there has been a significant pace of formation of the total gross domestic product, a slowdown in inflationary processes, a reduction in poverty, a focus on the service sector and industrial development. One of the priority areas of the functioning of the People's Republic of China is the formation and implementation of the territorial development of land use. Therefore, the substantiation of experience in ensuring the territorial development of land use in the regions of China is an urgent task.

**Analysis of existing research.** The development of theoretical and methodological approaches to ensure the territorial development of land use, the definition of the features of its implementation at the regional level are presented in the developments: [1–10]. However, the issues of ensuring the territorial development of land use in the regions remain unresolved, taking into account the influence of spatial, urban, investment and environmental factors and international experience.

**The aim of the study.** The main purpose of the study is to determine the theoretical base and research experience in ensuring the territorial development of land use in the coastal areas of China.

The objectives of the study to achieve the purpose are:

- substantiation of theoretical and methodological approaches to determining the territorial development of land use in regions;
- identification of the peculiarities of ensuring the territorial development of the territory of land, taking into account the experience of the coastal regions of China.

**Main part.** To determine the territorial development of the use of land in the regions, the factors determining it are identified. The importance of economic and geographical factors for ensuring the territorial development of the region is also indicated in [11], where it is noted that “the essence of geography is to study the connections of phenomena ... not only in space, but also in time, not only next to each other, but also in successive stages of their development” [11].

The definition of geospatial factors to ensure territorial development is presented in the developments [12–14].

In the study [15], external factors affecting the territorial development of re-gions are identified:

- macroeconomic factors, taking into account the level of inflation, unemployment, the size of energy tariffs;
- the formation and use of the regulatory framework;
- directions and features of state regulation of the territorial development of the region;
- ensuring intergovernmental relations;
- the influence of foreign economic factors.

Along with this, to ensure the territorial development of the region, spatial, urban, environmental factors are not indicated. In addition, focusing attention only on the economic aspects of territorial development leads to imbalances and inhibition of the presented process.

To ensure regional development, some scientists are building appropriate models:

- ecological and economic: natural resources are forming, the directions of their use are determined, taking into account their impact on the ecological state, industrial and economic relations are found;
- innovation and investment: the directions of the formation and implementation of investments are determined, taking into account the level of their innovativeness;
- innovative: directions and features of the formation of scientific and technological potential, multipliers of the innovative development of regions are established;
- cluster: characterized by territorial and industry proximity, research centers, access to knowledge, information, technology and innovation, investment attractiveness, the level of public-private partnerships, closed cycle;
- innovative mobilization: the directions of the formation of regional and innovative potentials are determined;

In the presented study, the main focus is on the economic and innovation-investment factors that ensure the territorial development of the regions. However, it reduces the complexity and reliability of the development, since territorial development includes a wide range of factors that are combined into groups: spatial, urban, investment, and environmental.

The advantages of the presented approach are the possibilities of taking into account social, production, state, and management factors interacting on the basis of the formation and implementation of the integrated system. This allows us to conclude a systemic approach to the visualization of areas of territorial development.

It should be pointed out a certain system of spatial, urban, investment factors affecting the use of urban land [8].

The disunity of theoretical approaches to determining the territorial development of land use in the regions has been established, where the main focus is only on certain aspects, in particular on spatial, urban, investment or environmental, or a combination of some of them. The presented approaches do not allow to systematically solve the problem of creating a theoretical and methodological basis for determining and evaluating the territorial development of land use and developing an appropriate mechanism for its provision.

As a result of the analysis of the existing theoretical and methodological provisions, a definition of the territorial development of land use in the regions is proposed, characterized as a combination of spatial, urban, investment and environmental factors, the interaction of which leads to the achievement of a qualitatively new state of land relations in comparison with the past, taking into account social, institutional, managerial features and the level of interaction of stakeholders operating in the field of land use in the region.

Territorial development is considered as a systemic permanent process of formation and use of land resources of the regions, it is determined by three scenarios: 1) negative – the influence of negative factors exceeds the influence of positive factors. In this case, the negative impact of factors on the use of land resources is minimized; 2) a moderate scenario is determined by balancing the negative and positive influence of factors of territorial development. To ensure the territorial development of the use of land in the regions, a basis is formed for the transition to a growth scenario; 3) the growth scenario is characterized by an excess of the positive influence of factors over the negative. In this context, territorial development is ensured on the basis of an increase in the level of land use efficiency in the regions.

The degree of influence of factors is determined on the basis of established types of relationships (inverse or direct) between spatial, urban, investment and environmental factors, the systemic factor of the territorial development of land use in the regions. Certain bonds and their density (stability) are affected by the values of the correlation coefficients. If the value of the correlation coefficient varies in the range from 0 to 0.49, then the relationships are unstable. In other cases (0.5–1), they consider stable.

The experience of ensuring the territorial development of land use in the coastal regions of China indicates a focus on the processes of globalization, decentralization and the transition to market conditions. The coastal regions of China are actively introducing modern information and integration technologies. In particular, Guangzhou, Shenzhen, Zhuhai, Foshan, Jiangmen, Dongguan, Zhongshan, Huizhou and Zhaoqing actively cooperate with Hong Kong and Macao [29]. In the regions, a trio model of territorial development of land use is being actively implemented, in which the territories of the Yangtze, the Pearl River, and Bohai Gulf interact. In addition, it should be noted that the territorial development is ensured by ensuring the development of large regional cities: South and East China –

Guangzhou, Shenzhen and Hong Kong in the Pearl River Delta region, Fuzhou – in the west coast region of the Taiwan Strait, Shanghai, Hangzhou and Nanjing in the region Yangtze River Deltas.

In this context, taking into account the theoretical basis for determining the territorial development of land use in the regions, taking into account the specifics of the functioning of coastal cities, the territorial development model, where spatial, urban, investment and environmental factors are determined, forms the appropriate quantitative basis and applies modern information systems.

**Conclusion.** The systemic directions and features of the territorial development of land use in the regions, characterized by its spatial, urban, investment and environmental factors, the application of which allows us to form a theoretical and methodological platform and develop a technology for ensuring territorial development at the regional level, are determined.

It is substantiated and proved that the theoretical and methodological meaning of the category “territorial development of the use of land of the regions” is necessary and appropriate to consider through the prism of systemic spatial, urban, investment and environmental factors, the interaction of which leads to the achievement of a qualitatively new state of land relations in comparison with the past, taking into account social, institutional, managerial features and the level of relations of stakeholders operating in the field of land use in the regions. It is this statement that allows us to determine the problem of ensuring the territorial development of the use of land in the regions, which is characterized by the directions of its assessment, a combination of information and geoinformation tools, and this requires the creation of a theoretical and methodological system (platform) to increase the efficiency of land use.

To ensure the territorial development of the use of land in the regions, sound methods and models are used to determine and evaluate it. This allows us to develop a methodological approach to the integrated assessment of the territorial development of land use in the regions as the basis of a theoretical and methodological platform based on: the information and analytical support, a multi-level diagnostic system of spatial, urban, investment and environmental factors, methodological and analytical procedures, with the possibility of varied modeling of territorial development. The technological feasibility of the methodological approach is determined by: the formation of a complex of spatial, urban, investment and environmental factors, the construction of a multi-level diagnostic system of indicators, their assessment based on modern methods and the development of mathematical models.

The experience of ensuring the territorial development of land use in the coastal regions of China is generalized and the necessity of applying the territorial development model, where spatial, urban, investment and environmental factors are taken into account, an appropriate quantitative basis is formed and modern information systems are applied.

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