

Research Article

Spatial Layout Analysis of Urban and Rural Buildings under Multicriteria Constraints

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With the development of the times, the rational use of land has become the focus of social and economic development. In order to make more efficient use of land value, this study analyzes the spatial layout of urban and rural buildings under multicriteria constraints. From 2016 to 2021, the city showed a stable growth trend, and the growth rates of the three showed obvious correlation. In 2019, the average growth rate of machine learning algorithm is 46.6%, the average growth rate of decision tree algorithm is 48.2%, the average growth rate of cloud computing is 51.8%, and the average growth rate of this method is 52.5%. It can be seen that in these four ways, it is based on this reasonable land distribution system that has promoted the process of urban modernization. With the rapid economic growth, the scale of urban and rural construction land has expanded rapidly. Only when the experience and decision-making ideas of planning decision-makers are effectively applied to the process of land use spatial layout, a scientific land use spatial layout scheme can be obtained.

1. Introduction

Urban land is expanding in the form of “spreading big cakes.” Instead of decreasing with the increase of urban land, rural residential land shows a growing trend. The backward utilization of industrial and mining land and unreasonable layout has brought great pressure to the ecological environment. Urban and rural construction shall strengthen the review of supporting infrastructure projects of affordable housing projects. In principle, it shall not be arranged for projects such as the main road network of Alkali City, the comprehensive management of urban squares and urban parks [1, 2]. The overall land use planning is a macrostrategic measure to coordinate the total land supply and demand and determine or adjust the land use structure and land layout in a certain planning area [3]. In today’s rapid economic development, the unreasonable spatial layout of land not only directly affects the development direction of land use but also leads to the uncoordinated development [4, 5]. When arranging supporting infrastructure construction projects for affordable housing projects, the investment in the central budget should focus on supporting the contents of drainage

and waterlogging prevention facilities of the project, give overall consideration to supporting the elimination of blank areas of sewage collection, and improve the treatment scheme of “one city, one policy, one policy in one District” [6]. It is not allowed to arrange projects, for which the local construction funds have not been implemented and the construction cannot be started within the specified time, which is in line with the financial affordability and government investment ability of the region, and effectively prevent the debt risk and financial risk of the local government. At the same time, we should earnestly implement the project construction conditions and focus on the projects that affect the use of the masses due to the short board of supporting infrastructure. For cities and counties where audit and supervision find that there are many problems and rectification is not in place, it is necessary to reduce the investment within the central budget [7, 8].

In spatial layout, when making a group decision, it involves different decision-makers holding different preferences for spatial layout level, which determines that the optimization problem must consider multiple discrete spatial layout levels. Considering these two aspects, the

theory of multicriteria and multiconstraint level programming is formed [9]. Today's decision-making problems have developed from single criteria to multicriteria, and the decision of a single decision-maker has developed to group decision-making with multiple decision-makers, especially the decision-making of large and complex systems [10, 11]. As the theory of linear programming matures, it has been widely used in complex decision-making in many fields such as financial management, agricultural policy, financial management, monetary management, production planning, and communication management.

This study establishes the theory and method of general horizontal nonlinear programming, studies its theoretical extension relationship with the original horizontal linear programming, defines the solution of horizontal nonlinear programming, investigates some properties of this solution set, and provides the necessary and sufficient conditions for the optimality of a special model [12]. Rational urban and rural land use structure and spatial distribution under multi criteria constraints is the best way and goal to seek and select land use. Only by forming a reasonable urban and rural land use structure and spatial layout, we can ensure a virtuous cycle of land use system in a certain region and coordinate the relationship between land, population, food, and ecology [13]. Based on the general theory of convex objective function and constraint function, the models with linear constraint and convex objective function and the models with special nonlinear correlation are discussed respectively, the corresponding solutions and programming implementation are provided, and various models are numerically tested or applied to oilfield development planning, The effectiveness of the model and algorithm is verified [14]. It is difficult to obtain a satisfactory land use spatial layout scheme by using the multicriteria constraint method or model. The reason is that the overall land use planning needs to realize a reasonable land use spatial layout decision under a variety of rules [15]. Only by effectively applying the experience and decision-making ideas of planning decision-makers to the process of land use spatial layout, we can get a scientific land use spatial layout scheme.

This study analyzes the spatial layout of urban and rural buildings under multicriteria constraints. To avoid complex mutual information calculation, some probability information of urban and rural building spatial layout is proposed to replace various direct measures and mutual information measures. The experience and decision-making ideas of planning decision-makers are effectively applied to the process of land use spatial layout. Full play is given to the attraction and sustainable development of industry to the population, and the population is attracted to the industrial agglomeration area to meet the needs of industrial development and population agglomeration. Regional administrative areas are rationally allocated, land use efficiency is maximized, and the two-way harmonious interaction between population, industry, land layout, and construction land is realized.

2. Related Work

2.1. Research Status. Yue et al. put forward that the type of agricultural land use and the degree of intensive management not only depend on the natural characteristics of the land, but more importantly, on its economic situation, especially the distance between it and the place where agricultural products are consumed. He systematically studied the types and intensity of agricultural land management around agricultural product consumption centers and how to arrange the land use structure, introduced the location factor into the research of land use, and preliminarily clarified the concept of location differential rent [16]. Ku and Tsai proposed a multitemporal SAR image classification method based on intelligent case base to dynamically monitor land use, which improved the accuracy and logic of the results [17]. Li et al. proposed that the division of natural ecological units should be river basins. Ecological regionalization is aimed at coordinating the relationship between ecological and completed on the basis of fully understanding the spatial differentiation law of regional ecosystem structure, process, and ecological service function [18]. Xiong and Zhang put forward that population growth is one of the driving forces for the expansion. Therefore, forecasting urban population has become one of the important preliminary works for forecasting the scale of urban construction land [19]. Chen et al. proposed to apply CBR to land use prediction. The application results show that CBR has higher accuracy and better effect than support vector machine and artificial neural network [20]. Li et al. put forward how to protect the ecological environment, promote the rational use of land, and choose a road of harmonious development between nature and human beings, which is not only the requirement and improving the quality and efficiency of development but also the inevitable choice of promoting the rational use of land and realizing sustainable development. Therefore, the construction of ecological civilization has become an important task of development [21]. With regard to various disputes and conflicts in rural areas, I have this feeling after reading several public opinion analysis: first, neighborhood relations are the social basis of grass-roots governance. To improve the pattern of grass-roots social governance, we should establish a neighborhood consultation mechanism and build the basic principles of grass-roots social life. Second, the public space related to neighborhood interests and mentality is insurmountable, and the bottom line of grass-roots social life and neighborhood relations must be maintained. Third, the reconstruction of community governance community in rural revitalization must start with neighborhood relations [22]. Ghauami proposed to use CBR to monitor the felling of trees in Amazon. The results show that CBR can explain the felling trend of trees in different types of landforms [23]. Oed et al. put forward the spatial pattern measurement and coupling mechanism of large-scale human activities and eco-environmental factors such as land use, urban growth, and industrialization, which has become a research hotspot [24]. Rodrigues et al. put forward that urban land use growth can be divided into three types: compact, marginal or multinode,

and corridor. Compact type refers to the fact that land expansion takes place in the gap zone inside the city; edge or multinode type refers to land expansion and development on the basis of several land plots on the edge of the city. These plots usually have commercial centers, entertainment centers, etc., and can provide more employment opportunities at the same time; corridor type refers to the land expansion along the main traffic arteries [25].

2.2. Research Status of Urban and Rural Architectural Spatial Layout under Multicriteria Constraints. Looking at the above relevant studies, we have conducted more research on the spatial layout of urban and rural buildings. This study analyzes the spatial layout of urban and rural buildings under the constraints of multiple criteria. China has slowed down, and with the introduction of various land use control policies, the demand for land may decline in the future. However, due to China's vast territory and large population base, the actual increase is still considerable. There is still a great demand for various factors, especially land use. The integrity and internal relevance should be fully considered from a regional perspective. In the layout of urban and rural construction land, we should not only layout all kinds of construction land according to local conditions but also consider urban and rural areas as an organic whole and make an overall layout of all kinds of land. On the one hand, contemporary rural society is the superposition and accumulation of traditional and modern social structure, traditional and modern cultural values, traditional and modern governance modes formed by the embedding of a series of external forces such as the impact of foreign machine industry, the erosion of urban capital, the reform of land system, the outflow of rural residents, and the introduction of modern technology in the great transformation of traditional local society in the past century. For its various problems that have occurred and are occurring, we should use history, reality theory, and other perspectives. In the spatial layout of urban and rural construction land, we should also fully consider the restriction and guidance of various social factors on the spatial layout. These social factors mainly include local government policies, regional characteristics, and so on.

3. Algorithm and Model of Multicriteria Constraints

The research on the urban spatial structure and the spatial distribution of urban buildings can master the urban land use function from the urban spatial distribution. It can be seen that the design and distribution of urban architecture are based on the study of urban capital density. At the same time, a series of building parameters can be used to put forward some substantive development suggestions for the personalized design of the system structure of urban architecture and the surrounding environment. Thus, the study puts forward some suggestions on the development of the spatial organization of urban architecture from a macroperspective.

The registration method based on probability statistics is derived from the mutual information method. In order to avoid the complicated calculation of mutual information, some people put forward that some probability information of urban and rural building spatial layout should be used instead of all kinds of direct measures and mutual information measures. The probability functions used include the corresponding probability of gray value, joint histogram area count, etc. Although this method greatly reduces the amount of computation, it also has the problems of optimization search and local extremum. The factors mainly include regional resources and environmental capacity, regional socio-economic development level, regional industrial structure, regional industrialization and urbanization process, regional infrastructure construction, population growth and spatial migration, natural disaster risk, planning guidance, policy and institutional factors, etc. Its goal is to give full play to the attraction of industries to the population according and sustainable development and attract the population to the industrial agglomeration areas, so as to meet the demand of industrial development and population agglomeration. The regional administrative regions should be allocated reasonably, so as to maximize the land use efficiency and realize the two-way harmonious interaction among population, industry, and land layout and construction land. The connotation of spatial layout optimization target of urban and rural construction land under multicriteria constraints is shown in Figure 1.

Before mining with the extended Apriori algorithm, the records in the database must take the customer number as the primary key. The reason is that the transaction rules with deterministic time constraints take the purchase behavior of each customer as the mining object. Because the multicriteria constraint takes each transaction activity as the mining object, the database usually takes the transaction number as the primary key for sorting. Sorting with transaction time as the secondary key can better analyze various policy and institutional factors that also affect regional population growth and spatial migration. The spatial layout database technology under multicriteria constraints is the general name of various technologies. The spatial layout model under multicriteria constraints is shown in Figure 2.

Interframe spatial layout registration can be defined as the spatial mapping of multiple spatial layouts. Assuming that the spatial layout f_1 is the spatial layout to be registered and f_2 is the reference spatial layout, the registration between f_1 and f_2 becomes the process of f_2 matching with f_1 through spatial transformation. Because the global motion between two consecutive frames is represented by translation and rotation around the optical axis, which can be represented by linear transformation, the parameter model is defined as follows:

$$\begin{bmatrix} x' \\ y' \end{bmatrix} = \begin{bmatrix} a_{11} & a_{12} \\ a_{21} & a_{22} \end{bmatrix} \begin{bmatrix} x \\ y \end{bmatrix} + \begin{bmatrix} b_1 \\ b_2 \end{bmatrix}, \quad (1)$$

where (x, y) (x', y') are the coordinates of two corresponding points in image f_1 and f_2 , respectively,

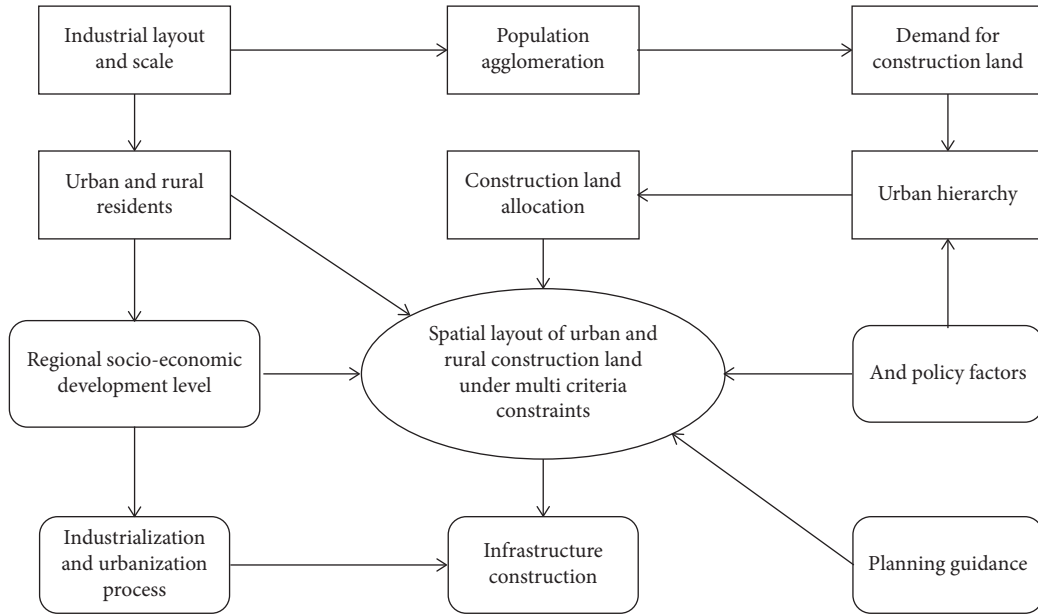


FIGURE 1: Connotation of spatial layout optimization objective of urban and rural construction land under multicriteria constraints.

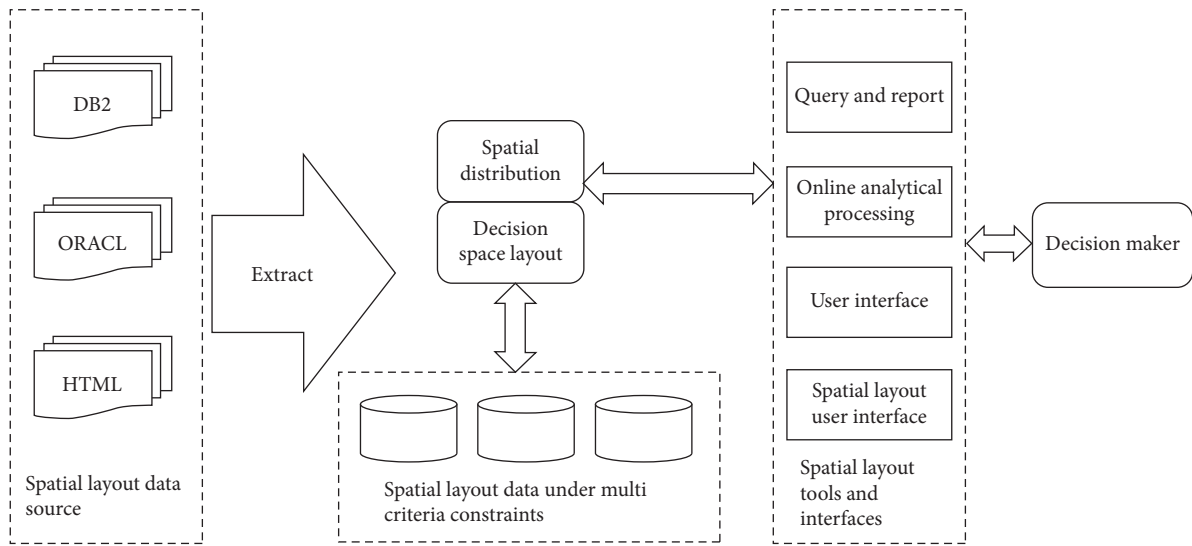


FIGURE 2: Spatial layout model diagram under multicriteria constraints.

$B = (b_1, b_2)^T$ is the translation vector, $A = \begin{bmatrix} a_{11} & a_{12} \\ a_{21} & a_{22} \end{bmatrix}$ is the parameter matrix, and a_{ij} and b_i are real numbers. The moment A and translation vector B are divided into several simple mappings, and another definition form of parametric affine transformation is obtained as follows:

$$\begin{bmatrix} x' \\ y' \end{bmatrix} = k \begin{bmatrix} \cos\theta & \sin\theta \\ -\sin\theta & \cos\theta \end{bmatrix} \begin{bmatrix} x \\ y \end{bmatrix} + \begin{bmatrix} \Delta x \\ \Delta y \end{bmatrix}. \quad (2)$$

Therefore, parametric affine transformation has six degrees of freedom, and translation, rotation, scaling, reflection, and shearing are its special cases. It can describe the imaging process from a target in a three-dimensional space to a two-dimensional plane.

Any three noncollinear points $[i, i, O(i, j)]$ in the spatial layout can form a generally oblique coordinate system, with the coordinate system $O(i, j)$ as the center and the vector $\vec{O}i$ and vector $\vec{O}j$ as the two basic vectors e_1, e_2 of the coordinate system, and then any point k on the image can be represented by the coordinate $m_k = \begin{bmatrix} m_{k1} \\ m_{k2} \end{bmatrix}$ under this coordinate system, i.e.,

$$r_k - r_{0(i,j)} = m_{k1}e_1 + m_{k2}e_2 = m_{k1}(r_i - r_{0(i,j)}) + m_{k2}(r_j - r_{0(i,j)}). \quad (3)$$

Therefore,

$$m_k = (r_i - r_{0(i,j)} \quad r_j - r_{0(i,j)})^{-1} (r_k - r_{0(i,j)}) = A_f r_k + T_f, \quad (4)$$

where

$$\begin{aligned} A_f &= (r_i - r_{0(i,j)}r_j - r_{0(i,j)})^{-1}, \\ T_f &= -A_f r_{0(i,j)}. \end{aligned} \quad (5)$$

The target coordinate system composed of vectors $\vec{O_i}$, $\vec{O_j}$ and base point $O(i, j)$ is called affine coordinate system, and the coordinates of any point k in the image under this coordinate system are called affine coordinates. After affine transformation,

$$r'_k - r'_{k1}(r'_i - r'_{0(i,j)}) + m'_{k2}(r'_j - r'_{0(i,j)}), \quad (6)$$

where

$$\begin{aligned} r'_k &= Ar_k + T, \\ A &= (r_i - r_{0(i,j)}r_j - r_{0(i,j)})^{-1}. \end{aligned} \quad (7)$$

Both sides of the above equation are multiplied by matrix A at the same time to obtain

$$r'_k - r'_{0(i,j)} = m_{k1}(r'_i - r'_{0(i,j)}) + m_{k2}(r'_j - r'_{0(i,j)}). \quad (8)$$

Therefore, how to find out the corresponding points of above three groups in the spatial layout f_1, f_2 is the key to solve the parameters of affine model.

Based on shape features, this kind of method performs geometric registration according to the common features between urban and rural buildings. In the rigid registration method, the algorithm iteratively improves the registration degree of the two sets by calculating the unique transformation, thus maximizing the similarity between the two sets. In addition, the registration method based on the spatial layout of urban and rural buildings is often applied in practice. By finding the registration parameters, the algorithm maximizes the similarity between feature quantities, and after determining the matching parameters, the spatial layout is transformed according to a certain transformation formula to achieve the purpose of registration. This method has the advantages of small calculation and simple algorithm and is suitable for engineering application.

4. Realization of Spatial Layout of Urban and Rural Buildings

4.1. Design of Urban and Rural Building Spatial Layout System under Multicriteria Constraints. Areas with higher levels of social and economic development have better infrastructure and investment environment, which can not only attract regional population to gather here but also attract investment. The impact of population aggregation and investment growth on construction land is beyond doubt. It not only affects the scale of construction land in various regions but also has a decisive impact on its spatial layout. Some villages and towns have a weak economic foundation. Inequality is the root of various social problems. The theory of equality among social members in the healthiest and happiest society is used as the analytical framework. This study analyzes the changes of neighborhood relations and psychological

adjustment in the process of China's transformation from local society to urban society as well as the behavioral conflicts between neighbors caused by social order and cultural imbalance in this process. A common form of community cultural conflict is the contradiction and conflict between different ethnic groups in the community. Contradictions and conflicts between local residents and foreign residents in the community. The rapid urbanization process has led to a large number of immigrants entering a community in the city, which has broken the old balance in the community and caused the collision, contradiction, and conflict between the community's cultural style and lifestyle. From the perspective of psychological mechanism, this phenomenon of contradictions and conflicts between heterogeneous cultures in communities is mainly related to people's "self-reference" psychology in their inner mechanism. People are used to explaining and judging the behavior of all other groups according to their own cultural personality and values. Therefore, it is easy to have prejudice against different cultures, which leads to the occurrence of various cultural conflicts.

The social structure characteristics behind it are explored, and the local cultural characteristics and changes of China's rural society are deeply understood. Strengthening community construction in rural revitalization is an issue that cannot be ignored in current rural governance. The development of emerging industries requires cities and towns with good transportation conditions, good economic foundation, and high labor quality. The key to the scientific and rational layout under the constraints of multiple criteria is to formulate a characteristic long-term development plan in combination with the specific characteristics of each township. The plan must be expected and flexible, leaving room for future development. The urban and rural building spatial layout system with multicriteria constraints will improve various land policies and social security systems on the basis of reforming the existing urban administrative system, so as to optimize the use of urban land structure.

4.2. Experimental Results and Analysis. After the layout, the area of all kinds of land use is counted, and the changes of all kinds of land use patterns are obtained, which are compared with the control indicators of Changshan land use master plan given by relevant government departments, as listed in Table 1.

The main indicators of the two layout schemes can meet the needs of planning control indicators, which shows that the land use spatial layout method based on ontology case-based reasoning and rule reasoning can obtain a better land use planning spatial layout scheme under a variety of constraints, which verifies the scientificity and effectiveness of this thinking method.

In 2020, a city will be 13,178.76 hectares, accounting for 7.95% of the total land area. Among them, the urban land area is 556.34 hectares and the urban land area is 678.31 hectares. The area of rural residential land is 8981.45 hectares, accounting for 4.23%, 5.14%, and 68.14% of urban

TABLE 1: Statistics of main planning control indicators.

Indicator name	Index quantity	Economic performance	Comprehensive benefits
Scale of urban and rural construction land	630	631	628
Total scale of construction land	1143	1126	1121
Scale of cultivated land occupied by new construction land	145	42	0
Scale of agricultural land occupied by new construction	505	171	268

TABLE 2: Current situation of various urban and rural construction land in towns and townships of a city.

Township name	City		Compulsory town		Rural residential area		Urban and rural construction land	
	Area	Proportion	Area	Proportion	Area	Proportion	Area	Proportion
Chenglu town	0.00	—	30.72	4.52	537.55	5.98	718.92	5.45
Chenhu town	0.00	—	71.24	10.48	522.58	5.81	893.13	6.77
Huilong town	0.00	—	26.35	3.88	333.03	3.72	359.37	2.72
Mahe town	0.00	—	142.71	21.03	550.48	6.12	289.83	2.21

Unit: ha, %.

TABLE 3: Overall distribution.

Index	Southeast region	Southwest region	Northern region
Total area of urban and rural construction land (HA)	5205.28	5681.96	2291.52
Total land area (HA)	48938.24	72290.53	44806.81
Density of urban and rural construction land (%)	10.63%	7.85%	5.12%

TABLE 4: Changes in the scale of urban and rural construction land in a city from 2017 to 2021.

	City		Compulsory town		Rural residential area		Urban and rural construction land	
	Area	Proportion	Area	Proportion	Area	Proportion	Area	Proportion
2017	464.12	3.58	607.28	4.71	9190.08	71.16	12913.02	100.00
2018	467.72	3.62	607.28	4.70	9155.68	71.03	12886.54	100.00
2019	477.43	3.72	607.29	4.72	9119.45	70.92	12856.84	100.00
2020	483.71	3.75	607.52	4.71	9114.58	70.87	12858.64	100.00
2021	523.52	4.04	607.63	4.72	9097.88	70.44	12924.33	100.00

and rural construction land respectively. The present situation of various types is listed in Table 2.

A city is located in the hinterland of Jiangnan Plain. Most areas are flat and gently inclined from northwest to southeast, with Longgang hills in the southeast and plains in the middle, north, and west. The overall distribution of construction land forms a pattern of dense southeast, sparse southwest, and sparse north, as listed in Table 3.

The proportion of the total area of urban, town, rural residential area, and urban-rural construction land in a city was 4.21%, 5.14%, 68.14%, and 22.47%, respectively. Compared with 2020, the proportion of urban land increased by 0.62%, the proportion of town increased by 0.45%, and the proportion of rural residential area decreased by 3.01%, as listed in Table 4.

Spatial distribution of natural ecological units the area and proportion of urban and rural construction land in natural ecological units are listed in Table 5.

The primary ecological functional area of ecological regulation is widely distributed in ecologically fragile areas

such as northwest, southwest, and northeast China, with the largest total area, up to 1753988.15 km², which is more than the sum of the other two primary ecological functional areas.

Investment in fixed assets is not only the premise of economic development but also the basis of land use replacement and land benefit improvement. From the perspective of economics, the transformation of land use and land use types is itself a process of capital utilization and circulation. This experiment was tested through the change of the relationship. The machine learning algorithm, decision tree algorithm, cloud computing, and the method in this study were used for three experiments. The experimental results are shown in Figures 3–5.

The urban and rural construction land showed a steady growth trend from 2016 to 2021, and the growth rates of the three showed an obvious correlation. In 2019, the average growth rate of machine learning algorithm is 46.6%, that of decision tree algorithm is 48.2%, that of cloud computing is 51.8%, and that of this method is 52.5%. This shows that, among the four methods, this method drives the rapid

TABLE 5: Distribution of urban and rural construction land in natural ecological units.

Primary ecological function area	Secondary ecological function area	Total area (km ²)	Urban and rural construction land area (km ²)	Proportion of urban and rural construction land (%)	Proportion of area within grade (%)
Ecoregulation	Water conservation	805513.73	2773.18	0.33	7.21
	Biodiversity conservation	948474.42	6080.03	0.63	15.82
Product offering	Agriculture products	1823077.41	73020.15	73020.13	80.46
	Forest product	838082.91	13487.11	13487.12	14.85
Human settlement security	Urban agglomeration	327734.31	36712.85	36712.85	100

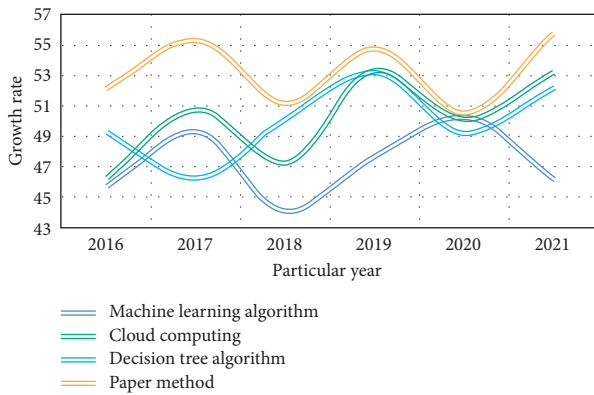


FIGURE 3: Calculation of different land construction relationships.

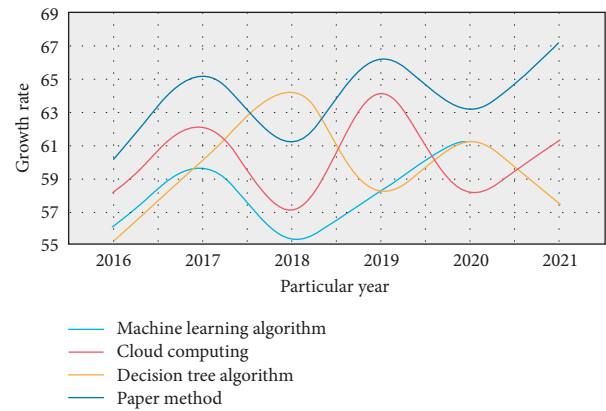


FIGURE 6: Changes in the relationship between GDP under different algorithms.

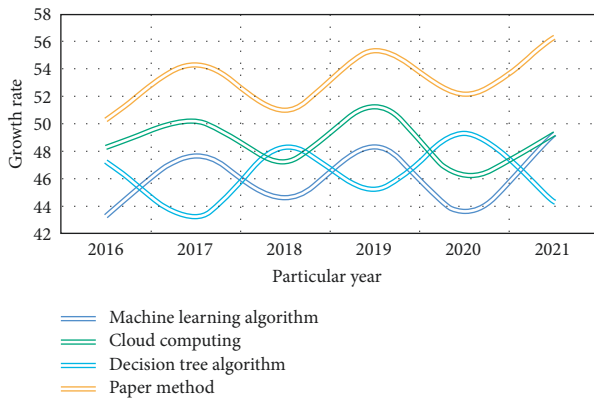


FIGURE 4: Changes in the relationship between urban and rural construction land under different algorithms.

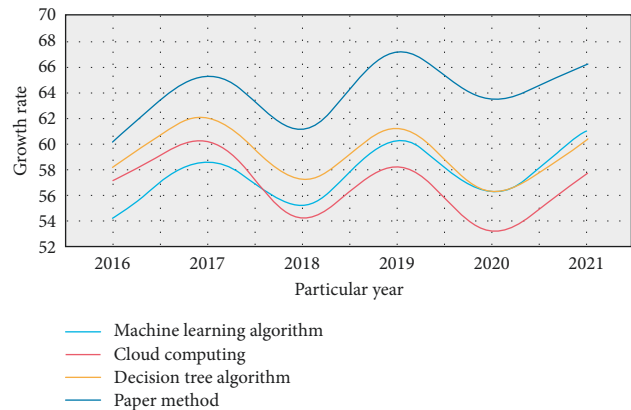


FIGURE 7: Changes in relation to GDP under different algorithms.

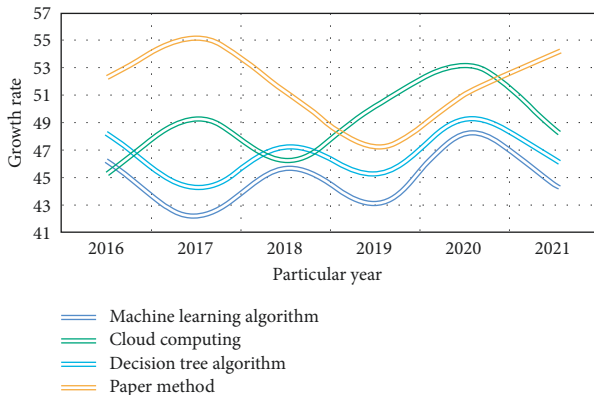


FIGURE 5: Construction land under different algorithms.

economic growth, while that expands rapidly with the rapid economic growth.

This experiment is tested by the change of the relationship between GDP from 2016 to 2021. Machine learning algorithm, decision tree algorithm, cloud computing, and this method are used for two experimental comparisons. The experimental results are shown in Figures 6 and 7.

It can be seen from Figures 6 to 7 that the GDP showed a steady growth trend from 2016 to 2021, and the growth rates of the three showed an obvious correlation. In 2020, the average growth rate of machine learning algorithm is 58.5%, the average growth rate of decision tree algorithm is 58.4%,

the average growth rate of cloud computing is 56.2%, and the average growth rate of this method is 63.5%. This shows that among the four methods, the rapid growth of GDP in this method has driven the rapid economic growth, the economic development is relatively rapid, and the demand for construction land is greater.

5. Conclusion

This study not only considers the layout coordination of various types of construction land but also considers the overall layout. The spatial layout of urban and rural buildings is the main body to tap the potential of construction land, so it is necessary to make a scientific and reasonable planning. This study studies the spatial layout of urban and rural buildings under multicriteria constraints. From 2016 to 2021, urban and rural construction land showed a steady growth trend, and the growth rates of the three showed obvious correlation. In 2019, the average growth rate of machine learning algorithm is 46.6%, the average growth rate of decision tree algorithm is 48.2%, and the average growth rate of cloud computing is 51.8%. The average growth rate of this method is 52.5%. This shows that among the four methods, this method has promoted the rapid economic growth. The layout of urban and rural construction land under multicriteria constraints is greatly affected by the location theory. Clijster's central land theory has important guiding significance for the layout of construction land. The growth pole theory and the point axis development theory are the basic basis for the layout of regional urban and rural construction land. In addition, the concepts of "smart growth" and "antiplanning" should be injected into the layout of construction land. Under the constraints of multiple criteria, the key to a scientific and reasonable layout is to formulate a distinctive long-term development plan in combination with the specific characteristics of each township. The plan must be predictable and flexible, leaving room for future development. Based on the reform of the existing urban management system, the multicriteria-constrained urban and rural building spatial layout system will improve various land policies and social security systems and optimize the urban land use structure. However, the study still has some limitations. In the spatial layout of urban and rural construction land, we should also fully consider the constraints and guidance of various social factors on the spatial layout. Therefore, future research needs to take these social factors into account.

Data Availability

The data used to support the findings of this study are available from the corresponding author upon request.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

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