

The Measurement and Path Study of Green Urbanization in Changsha-Zhuzhou-Tanzhou City Group Under the Background of Intelligent Society

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Abstract: With the vigorous development of China's socialist economic, the synergy of economic development in different regions has become a key factor to further improve the speed and quality of economic development in China. This paper gives a deep research on the measurement and path study of Changsha-Zhuzhou-Tanzhou City Group in the context of intelligent society. The main research content includes that the analysis of the experience of green urbanization of urban groups at home and abroad, the measurement and path of green urbanization in Changsha-Zhuzhou-Tanzhou City Group.

Keywords: Changsha-Zhuzhou-Tanzhou city group; Urbanization; Collaborative development

1. Introduction

Based on the theoretical research results and concrete practice of urban group development at home and abroad, we believe that the construction of the index system for evaluating the development of urban clusters mainly focuses on the direction of urban group development, the corresponding key areas and the corresponding specific evaluation index items. At the same time, drawing on the experience of urban group development model at home and abroad, the establishment and effective operation of the three coordination mechanisms of regional infrastructure, industrial structure and ecological environment have become the key elements of the development of Changsha-Zhuzhou-Tanzhou city group.

2. The Experience Summary and Reference of the Green Urbanization of Urban Groups at Home and Abroad Under the Background of Intelligent Society

2.1. Reference to the experience of green urbanization of international urban groups in the context of intelligent society

We will compare several representative countries, and give analysis about the experience of urbanization internationalization brought in the process of urbanization, namely, the British model, the American model and the Japanese model:

First, about the British model. Dates back to the beginning of the twentieth century, Britain began to put forward the idea of an idyllic city model. In 2007, the UK

launched a nationwide program to build eco-towns. The core concept of this innovative urbanization construction model is to promote friendenvironment, protect the environment by technology and control carbon emissions and other "urban disease". At the same time, in the overall planning process of urbanization, people are encouraged to use public transport, with the aim of reducing the use of private cars. In addition, in the process of urbanization, the sustainable development of the community model should be launched for integrated management, development and utilization of urban waste storage, collection, treatment, classification and reuse.

Second, about the American model. Before World War II, the United States began planning to build a modern city design standards and patterns. Its main features are environmental protection, energy-saving intelligent urbanization growth mode. The core connotation of these urbanization model propositions lies in creating a living atmosphere that is humane and suitable for walking. At the same time, it gives residents the sense of belonging and protects natural cultural resources. The construction and development costs and resource allocation are fair and reasonable. From the American urbanization process, it can be found that they pay more attention to the adoption of legislative means to regulate the process of urbanization. Meanwhile, through the government-led model, urbanization construction is moving towards environmental protection and green planning and development.

In promoting its urbanization, Japan's core concept is low carbon, green and environmental protection. On the supply side, that is, the relevant industrial structure, the government starts to guide and popularize low-carbon

technology methods. On the demanding side, the government encourages and advocates people to choose low-carbon consumption products and services as much as possible, and even introduces green consumption incentives. That is to say, when the consumer on the demand side purchase energy-saving and environmentally friendly products and services, they will obtain the corresponding point-digit reward, for the purchase of products after a certain amount of consumption coupons. In the field of construction on the supply side, Japan also adopts low-carbon environmental incentives to promote low-carbon operation in the construction industry.

2.2. A summary of the experience for the green urbanization of domestic urban groups under the background of intelligent society

To sum up, in the process of promoting urbanization, countries all over the world will design and promote established policies and objectives in accordance with their natural, social, scientific and technological and historical and cultural characteristics. Through our research, we can think that the international experience of building green urbanization are as follows:

First, the design and formulation of urbanization work objectives have characteristics of distinct concreteness, site-specific and practicality, clarity. The supply side and the demand side arranged in accordance with their own role, and actively devoted to the planning of the important initiatives of green urbanization;

Second, characteristics of sustainable development, environment protection, green and low carbon, are very significant. The era of the international community's development get productivity at the expense of the environment has gone. So far, green, environmental protection and low-carbon awareness and action has become the consensus of all mankind. Therefore, in the process of promoting urbanization path in all countries of the world, this important subject concerning the community of human destiny will be regarded as a compulsory project, and the only one choice.

Third, the construction of a perfect legal security system has also become one of the important experiences of the international community in promoting urbanization. The practice of a large number of national governances at home and abroad proves that rule itself is a productive force. Legalization is a necessary condition for the government and the people to jointly promote the process of urbanization. If we lose legal protection, then the social progress and development goals of urbanization construction will be difficult to implement effectively.

3. The Study on the Development Measurement Level of Green Urbanization in Changsha-Zhuzhou-Tanzhou City Group Under the Background of Intelligent Society

In the process of building and developing urbanization, the construction of the evaluation index system of relevant professional aspects has become the key point of practical control:

3.1. Construction of the evaluation index system of green urbanization of Changsha-Zhuzhou-Tanzhou city group under the background of intelligent society

Firstly, it is the develop direction evaluation of city group; second, the factor of the key areas in the corresponding city group development direction is evaluated; and finally, the specific evaluation indicators for the key areas of the development of the corresponding city group (see table 1).

Table 1. The evaluation index system design oftaking city group development as evaluation indicator

Evaluation indicator	Evaluation range	Evaluation index
The development phase of city group	Overall development level 0.20	Urbanization rate0.28
		City density0.31
		The structure of town scale0.15
		Central city grade0.26
		Per capita GDP0.30
		Per capita fixed investment0.18
	Economic development level 0.26	The percent of total output value in whole province and district0.22
		The proportion of second industry in the GDP0.11
		The proportion of third industry in the GDP0.19
		Reachability between cities0.42
	Infrastructure level 0.25	Intensity of road network0.20
		Intensity of railroad network0.15
		Informatization degree0.23
		Function complementation of cities0.36
	Inner connection level 0.16	Intimacy between cities0.40
		Coordinated mechanism condition between cities0.21
		Proportion of foreign-investment in total investment0.28
	Outer connection level 0.13	Proportion of foreign-owned enterprises output value in total output value0.27
Rate of tourist in a year and the total population0.45		

3.2. The performance of the development level of green urbanization in Changsha-Zhuzhou-Tanzhou city group under the background of intelligent society

Table 2. Measures of green development level of Changsha-Zhuzhou-Tanzhou city group

Evaluation index	Changsha-Zhuzhou-Tanzhou city group	General Changsha-Zhuzhou-Tanzhou city group
Urbanization rate (%)	31.38	29.13
City density (10km ²)	5.34	5.15
The structure of town scale (grade)	70	50
Central city grade (grade)	65	65
Per capita GDP(yuan/per)	19053	12949
Per capita fixed investment(yuan/per)	9767	5209
The percent of total output value in whole province and district(%)	38.34	77.57
The proportion of second industry in the GDP(%)	44.20	42.39
The percent of third industry in the GDP (%)	45.80	40.67
Reachability between cities(hour)	0.6	2.5
Intensity of road network (km/10km ²)	15700	15400
Intensity of railroad network(km/ 10km ²)	2300	2100
Informatization degree (household)	25.20	14.13
Function complementation of cities(grade)	75	58
Intimacy between cities(grade)	70	50
Coordinated mechanism condition between cities(grade)	76	45
Proportion of foreign-investment in total investment	7.97	6.93
Proportion of foreign-owned enterprises output value in total output value	12.24	8.61
Rate of tourist in a year and the total population	2.81	1.51

3.3. The measure results and analysis of green urbanization development of Changsha-Zhuzhou-Tanzhou city group under the background of intelligent society

From Table 1 and Table 2 we can get the index factor weight and the corresponding fuzzy judgment matrix, for which we can carry out the comprehensive determination of the development evaluation index of Changsha-Zhuzhou-Tanzhou city group. The indicator weight W_i matrix and the fuzzy matrix R_i is calculated by fuzzy multiplied to give the index evaluation value, the calculation formula is:

$$B_i = w_i \bullet R_i = (b_{i1}, b_{i2}, b_{i3}, b_{i4})$$

After that, the fuzzy matrix equivalent to evaluation indicator in the evaluation field is measured. The result of the

comprehensive determination is obtained, and the formula is:

$$D = W \bullet B = (W_1, W_2, W_3, W_4, W_5) \bullet (B_1, B_2, B_3, B_4, B_5)^T = (d_1, d_2, d_3, d_4)$$

The d_i in the above measurement formula indicates that the evaluation indicator is subordinate to the icomment.

At the same time, if $\max_{1 \leq i \leq 4} (d_i) = d_k (1 \leq k \leq 4)$ then, it can

be considered that the evaluation index belongs to the corresponding k-level comments, that is the evaluation results.

Therefore, it is concluded that the development of Changsha-Zhuzhou-Tanzhou city group is at the rapid development stage. But in the process of rapid development the membership degree is not very high, that is, less than 0.5. For this reason, the region is still in the primary stage of rapid development. From the point of the development law of urban group, the factors such as urban density, railway network construction density and foreign direct investment strength in Changsha-Zhuzhou-Tanzhou area are still in the stage of development. Proportion of the secondary industry in GDP indicates that the membership value of these two stages is larger than 0. Because there is no measurement value in the mature index range, so Changsha-Zhuzhou-Tanzhou city group belongs to the mature stage membership value of 0.

4. The Study of the Urbanization Development Path of Changsha-Zhuzhou-Tanzhou City Group City Group Green in the Background of Intelligent Society

Through the above-mentioned evaluation of the development of Changsha-Zhuzhou-Tanzhou city group, it can be found that the region is still in a relatively early stage of development. Although the development of city group located in coastal areas of China has made great achievements, the level of collaborative mechanism construction under the concept of urban clusters still needs to be further improved. Changsha-Zhuzhou-Tanzhou city group has also achieved good results in the coordination mechanism, but in terms of overall evaluation, it is still at a relatively early level. A further deep development of the path and way will be explored in the following:

First, design and set up coordination mechanism and institutions that leads the urbanization of Changsha-Zhuzhou-Tanzhou City Group

So far, despite the strong trend of global economic integration, the international and domestic administrative division and the reality of the jurisdiction will still play its corresponding role in a short period of time. The pattern of production relations of administrative jurisdiction in different regions will still affect the process and quality of the coordinated development of productivity among regions to a great extent. Thus, in such cases, the development of synergy among the authorities in the regions

depends on the degree of synergy between the authoritative authorities of the regional-dominated jurisdictions. Based on the coordinated development of urban clusters among the leading administrative departments of the regions, the reforest ingress of coordinated work mechanisms is needed. Corresponding synergies and mechanisms, including power, responsibility and financial synergies, are developed to effectively promote the coordinated development of city group.

In order to promote the development of Changsha-Zhuzhou-Tanzhou city group in depth, it is necessary to establish an authoritative and cooperative body composed of the competent departments at the higher level of the relevant city, the leadership group for the coordinated development of Changsha-Zhuzhou-Tanzhou city group and the organizational structure and corresponding operation process and mechanism of daily operation and management. Next, it is also necessary to formulate the organization and management agreements, systems and laws and regulations within Changsha-Zhuzhou-Tanzhou City Group under the leadership of the Leading Group of Changsha-Zhuzhou-Tanzhou City Group, which is used to coordinate and resolve the regional or inter-departmental contradictions and conflicts that arise in the process of coordinated development of the urban group, so as to promote the collaborative development and carry on in accordance with the law and order.

Second, the establishment of Changsha-Zhuzhou-Tanzhou city group cross-city industrial structure and various industries co-organizing

In the industrial institutions within the urban cluster, with the coordinated development process, the conflict of industrial structure between cities or regions is bound to occur. Therefore, in the collaborative development of Changsha-Zhuzhou-Tanzhou city group, focusing on the organic coordination of industrial structure has also become one of the key points. Therefore, the establishment of Changsha-Zhuzhou-Tanzhou in ter-group industrial organizations in coordinating the various industries in the region to produce operational elements of resources complementary advantages, industrial chain coordination and industrial structure optimization will play an important role. In the process of operation, on the one hand, it has become the function of sharing information platform for the development of Changsha-Zhuzhou-Tanzhou City Group city group industry. Secondly, it is also necessary to undertake the function of coordinating the balanced development function of industries among regions, and realizing the function of the overall industrial structure layout of Changsha-Zhuzhou-Tanzhou City Group area, which is the advantage of resources with the advantages of industry. Then again, it is the function of supervision and coordination. That is, within the scope of Changsha-Zhuzhou-Tanzhou city group, the layout of industrial structure and the process of industrial chain coordination

can be optimized to effectively solve the various problems of incongruity. At the same time, according to the characteristics of different industries this kind of cooperative management industrialization can be projected as official, non-governmental and semi-official model, which is used for constructing demands of diversified industrial structure and ownership. In the process of optimizing the layout of industrial structure and the orderly operation of the industrial chain, we strive to coordinate the balance of interests between the state and region, region and enterprises, as well as between the state and enterprises.

Third, large enterprise groups can be empowered, making Changsha-Zhuzhou-Tanzhou city group a cooperative development with living force.

The experience of urban group development at home and abroad tells us that, especially in the primary stage of the coordinated development of urban clusters, it has become an important and basic task for the coordinated development of urban clusters by relying on the integration and development of industrial clusters among urban clusters. Therefore, in the process of the coordinated development of urban clusters, that is, based on the integration and development of industrial structure, the economic development coordination of the region is very critical and important. Because, based on industrial clusters, taking the allocation of market-oriented resources as measures, and exerting the integration capacity and mechanism of large enterprise groups, we can deeply optimize the industrial structure and corresponding supporting resources in accordance with the market-oriented economic model and law with socialist characteristics. At the same time, the industrial structure of Changsha-Zhuzhou-Tanzhou city group and the allocation of resources in the industrial chain, which are dominated by industrial clusters, do not require the administrative operation of regional administrative agencies, that is, to operate market economy in accordance with the laws of the market. The separation of government and enterprises can be achieved, and enterprises can be taken as the main body of market operation. The implementation of group enterprises run across regions, industry and even ownership of the market-oriented operation mechanism and model can be put into force, making it solid economic foundation for the collaborative development of Changsha-Zhuzhou-Tanzhou city group.

5. Conclusion

Looking at the course of urban construction and development in the developed countries of the international community and the experience gained by our country, we find that with the rapid development of economic scale and quality, it has become a successful experience of internationalization with the important measures and means of urbanization, expansion and development. Chi-

na has created the development miracle of "China's speed" in the world, so that the historical mission of urbanization construction of capacity, expansion and development is set before us. Therefore, on the basis of in-depth study of international experience, it has become an important task for us to constantly improve the urbanization construction and development mode of our country. It is the winning weapon for us to adopt sustainable development to promote the construction of urbanization by establishing and strengthening our legal system construction, scientific and professional evaluation system and its operation methods in the process of urbanization. Creating environmental harmony, industrial structure harmony and infrastructure construction harmony is the only way for us to promote the development of healthy urbanization.

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