Construction of Evaluation Index System of Zhanjiang Main Functional Area

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Abstract: Through the study of Zhanjiang main functional area, the purpose is to establish an effective evaluation index system, using AHP analytic hierarchy process to determine the weight of each index. The results show that the main functional areas of Zhanjiang have obvious advantages in ecological indicators, but lack in economy, opening up and Urban-Rural Coordination. We should focus on increasing Zhanjiang's total economic output, and for the first time, we should consider connecting new channels of international land and sea trade from the perspective of Zhanjiang's main functional areas.

Keywords: Main Functional Area; Index System; New International Land and Sea Trade Channel

1. Connotation of Main Functional Area

In the nineties of the 20th century, the state carried out the strategy of developing the western region, so it emphasized the importance of spatial planning. In June 2011, the State Council deliberated and passed the planning of main functional areas, dividing land and resources into four main functional areas, namely, priority development area, key development area, restricted development area and forbidden development area, and stipulating the specific scope of each main functional area, its own development priorities and objectives, and the principles to be followed in development. The meaning of the main functional area can be understood as: in order to solve the problems of disordered development of land and resources and uncoordinated regional development, the bearing capacity of resources and environment, the development basis and future development potential of each region should be comprehensively considered, the administrative barriers should be broken, the land space should be re divided, the land resources should be reasonably developed, and the land space should be divided into several spaces with certain specific functions Unit, and for different main functional areas, our government should adopt different policies for jurisdiction and governance[1].

In the planning of national main functional areas, Zhanjiang City is listed as a national key development area. In the planning of main functional areas of Guangdong Province, Chikan, Xiashan, Machang, Potou, Lianjiang, Wuchuan and Zhanjiang development zones are listed as national key development areas, while Leizhou, Xuwen and Suixi are listed as national main agricultural production areas in the ecological development areas.A good construction of the evaluation index system of Zhanjiang's main functional areas will help Zhanjiang better integrate into the national strategies of Guangdong, Hong Kong and Macao, Hainan Free Trade Zone, new international land and sea trade channel, etc.

2. Development Evaluation Index of Zhanjiang Main Functional Area

In the national main functional area plan, the function orientation of the key development main functional areas is: to support the important growth pole of national economic growth, to implement the overall strategy of regional development, to promote the important supporting points of regional coordinated development, and to be an important population and economic intensive area in the country. Therefore, the development of key development main functional areas needs to take ecological construction as the starting point, adhere to the path of independent innovation, enhance the new driving force of innovation driven development, accelerate the formation of a new way of economic development, promote the sustained and healthy promotion of the economy, drive the steady progress of urbanization, and ultimately achieve the improvement of people's living standards. Therefore, the development of Zhanjiang main functional area is evaluated from five indicators: economic growth, ecological environment protection, independent innovation ability, opening up and coordinated development[2].

2.1 Economic development

Economic development is one of the important functional orientations of the main functional areas, so economic development is an important part of its performance evaluation system of economic and social development. The main characteristics of the main functional areas for key development are good industrial foundation and high degree of opening to the outside world. Accelerating industrialization and vigorously developing characteristic and efficient agriculture are the two important development directions. Therefore, the economic development of Zhanjiang main functional areas should focus on two aspects: economic structure and economic benefits, which also constitute the main

functional areas for key development Evaluation content of development status.

2.2 Ecological Environment Protection

It is an important guarantee for sustainable development to develop the main functional areas and carry out ecological construction. Since the 18th National Congress of the Communist Party of China, the state has incorporated the construction of ecological civilization into the "five in one" development layout as one of the performance appraisal systems for economic and social development[3]. "13th five year plan" is an important concept of green development as economic and social development in the 13th five year plan and even longer period, which has far-reaching and important significance. Therefore, the main functional area of Zhanjiang should take ecological construction as an important part of its economic and social development. The plan also clearly points out the development direction of key development main functional areas, namely "strengthening resource conservation and intensification" and "strengthening regional ecological construction and environmental protection". Therefore, resource utilization and environmental protection constitute the evaluation content of ecological construction in the main functional areas of key development.

2.3 Ecological Environment Protection

The ability of independent innovation reflects the level of scientific and Technological Development and innovation of a country or region, and improves the ability of independent innovation of Zhanjiang City: first, to achieve more scientific discoveries and major technological inventions in various fields of production; second, to highlight the enhancement of integrated innovation, so that relevant technological achievements can be integrated and gathered to form products and industries with market competitiveness; third It is necessary to fully digest, absorb and innovate on the basis of widely absorbing global scientific achievements and actively introducing foreign advanced technologies. All in all, it is technological innovation, management innovation and system innovation[4].

2.4 Opening up Ability

Chinese leaders pointed out in the nineteen major reports that we should promote a new pattern of all-round opening up. China's open door will not be closed, it will only open wider and wider. We should focus on the construction of "one belt and one road", adhere to the principle of "bringing in and going out", abide by the principle of "sharing and sharing", and strengthen the opening and cooperation of innovative capabilities, so as to form an open pattern of linkage between land, sea and abroad. As a key functional area, Zhanjiang needs to vigorously develop foreign trade, make rational use of foreign capital, and actively introduce foreign advanced technology and equipment.

2.5 Coordinated Development

Coordinated development is the final goal of economic and social development of Zhanjiang's main functional area, and the ultimate realization of "people-oriented". Therefore, coordinated development is one of the important characteristics of economic and social development of Zhanjiang's main functional area, which is mainly implemented through a series of people's livelihood work, including education, medical care, social security, employment status, etc It constitutes an important representation of coordinated development[5]. At the same time, it is clearly pointed out in the planning that "accelerating urbanization" and accelerating urbanization can effectively promote the development of urban-rural integration and urban-rural integration, which is an important way to promote the transformation and upgrading of economic structure, and an important booster to promote people's progress in economy, society, culture and ideology. Therefore, the level of urbanization is also an important indicator of coordinated development. Therefore, the coordinated development of Zhanjiang's main functional areas can be evaluated from three levels: education and medical care, social security and employment, and urbanization level.

3. Development Evaluation Index System of Zhanjiang Main Functional Area

Combined with the basic connotation of the five indicators of economic growth, ecological environment protection, independent innovation ability, opening to the outside world and coordinated development, the corresponding two-level and three-level indicators are designed, and the weight value is determined by AHP, forming the development evaluation index system of Zhanjiang main functional area.

The development level of Zhanjiang main functional area in 2014-2018 is calculated by using the statistical yearbook, data published by industry association and research data. In this paper, 25 three-level indicators need to be standardized according to different types of data indicators and different dimensions of data. Index types are mainly divided into positive and negative indicators. The larger the positive indicator value is, the better the negative indicator value is. Therefore, the inverse method can be used for the negative indicator to convert it into a positive indicator. The standardization of data indicators also needs to deal with indicators of different dimensions, which is mainly based on indicators of different dimensions that cannot be directly evaluated. Therefore, referring to the processing methods of relevant scholars, this paper adopts the "minimum maximum standardization method" for dimensionless processing, and its calculation formula is as follows:

$$Z_{ij} = \frac{x_{ij} - \min\{x_{ij}\}}{\max\{x_{ij}\} - \min\{x_{ij}\}} \tag{1}$$

x_{ij} And Z_{ij} respectively represent the original data and standardized index data, $\max\{x_{ij}\}$ and

$\min\{x_{ij}\}$ respectively represent the maximum and minimum values in the original data[6].

Table 1 Development evaluation index system of Zhanjiang main functional area

First level index & weight	Secondary index & weight	Three level index	weight
Economic Growth0.312	Economic Performance0.562	GDP Growth Rate	0.367
		Per Capita GDP	0.228
		Per Capita Financial Income	0.405
	Economic Structure0.438	Proportion of Primary Industry	0.501
		Proportion of Secondary Industry	0.499
Ecological Environment Protection0.214	Resource Utilization0.500	Per Capita Domestic Water	0.328
		Energy Consumption Per 10000 Yuan of GDP	0.451
		Forest Coverage	0.221
	Environmental protection0.500	Urban Green Coverage	0.336
		Garbage Classification Coverage	0.241
		Days with Good Air Quality	0.423
Independent Innovation Ability0.124	Investment in Science and Technology0.478	Number of Scientific Research Institutions	0.387
		Number of R & D Projects of Industrial Enterprises	0.395
		R & D Investment	0.218
	Technology Output0.522	Number of Valid Invention Patents	0.291
		Sales Revenue of New Products of Industrial Enterprises	0.442
		Proportion of Innovative Enterprises	0.267
Opening to Outside World0.119	Volume of Trade0.500	Import and Export Trade Volume	0.553
		Foreign Investment	0.447
	Utilization Amount0.500	Proportion of Foreign Investment	0.536
		Foreign Investment Increment	0.464
Coordinated Development0.231	Education and Medical Treatment0.533	Years of education Per Capita	0.653
		Thousands of Health Technicians	0.347
	Urbanization0.467	Proportion of Non-agricultural Population	0.527
		Proportion of Employees in Secondary and Tertiary Industries	0.473

In the project, the scores of the five first level indicators of economic growth, ecological environment protection, independent innovation ability, opening up and coordinated development, the second level indicators and the third level indicators of Zhanjiang City in 2014-2018 are calculated, and the total scores are calculated based on the weight of each indicator. Table 2 shows the first level indicators and total scores in 2014-2018.

Table 2 Scores of main indicators in 2014-2018

Index	2014	2015	2016	2017	2018
Economic Growth	0.436	0.447	0.456	0.461	0.467
Ecological Environment Protection	0.614	0.687	0.688	0.691	0.695
Independent Innovation Ability	0.415	0.426	0.427	0.429	0.433
Opening to Outside World	0.416	0.421	0.462	0.478	0.492
Coordinated Development	0.348	0.349	0.351	0.352	0.352
Total Score	0.479	0.501	0.509	0.514	0.551

It can be seen from table 2 that all indicators of Zhanjiang City show an increasing trend year by year in 2014-2018, but most of them are below 0.5, indicating that the overall development level is not high, among which the coordinated development indicator is only 0.352 in 2018, reflecting that the overall medical education, urbanization and other indicators of Zhanjiang are relatively backward due to the large number of rural

population. Among them, the eco-environmental indicators performed well, consistently above 0.6 in 2014-2018, especially from 2018 to 0.695.

4. Conclusion

According to the national and Guangdong Province's positioning policy for Zhanjiang's main functional area, five indicators of economic growth, ecological environment protection, independent innovation ability, opening up and coordinated development are selected as the core of the evaluation index system, and the scores of these five indicators are calculated. It is concluded that Zhanjiang needs to give full play to its natural geographical advantages, expand its economic aggregate and Urban-Rural Coordination Conclusion. It helps Zhanjiang better develop its strengths and make up for its weaknesses in the national strategies of integrating into Guangdong, Hong Kong, Macao, Dawan District, Hainan free trade zone and new international land sea trade channel.

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