



URBAN PLANNING OF SPECIAL ECONOMIC ZONE COMBINED WITH ECONOMIC STRUCTURE.

Guangming Han, Jing Zhu, Xiuqin Deng

Abstract

Urban planning of a special economic zone and a model of regional economic structure are mutually dependent. Regional basic economic structures and future development of direction of economic structures play a crucial role in constructing and guiding urban rail transport, architecture, functional areas, and infrastructures in a particular region. With the Pearl River Delta as the core, including the Shenzhen-Shantou Special Cooperation Area, Hong Kong Special Administrative Region, Macao Special Administrative Region, the three-part "Greater Pearl River Delta" is formed, which is regarded as the "South Gate" of China. This area boasts an advanced manufacturing base and a modern service industry base with global influence in the economic region. This study focuses on the economic zone of the Pearl River Delta, which is undoubtedly of practical significance. By analyzing and summarizing the current situation of the industrial layout of the Pearl River Delta, and basing on the horizontally distributed study of the main development direction of future industries, we obtained statistical analysis results to predict the future development of the main industries in the region. On the basis of these results, the strategic goal, development cause, and modern industrial system of the Pearl River Delta Economic Zone are clearly established with the guiding ideology of the Chinese government, which defined and summarized the planning of urban and rural integration in the region.

Keywords: Pearl River Delta, Economic Structure, Economic Mode, Planning Of Urban And Rural Area, Statistical Analysis.

1. Introduction

Economic globalization and regional economic integration is a paralleled development trend in the world today. Globalization has promoted the development of cities, whereas the regional economic integration has led to the development of urban agglomeration and urban areas (Ding, Fields, Akhtar, 1997). Under the combination of the two, the "World City Region" has become the core power to promote economic growth nationally and globally. The Pearl River Delta region has switched to the integration of high-quality roads by urgently building global cities to promote regions, enabling these cities to become among the most dynamic and internationally competitive in the Asia-Pacific region (Zhu, 1994).

Since the reform and opening-up policy of China, the Pearl River Delta region has gradually developed into one of the largest town-concentrated areas with the highest level of urbanization. By the end of 2008, the urbanization level of the Pearl River Delta had reached 80.5% and the average population density was 863 people per square kilometer (sq. km.) (Ngai, 2004). Under these circumstances, the Pearl River Delta has formed a development pattern with multiple centers and intensive towns, basically laying the foundation for the integration and development of space (Wong, Chu. 1985).

However, due to lack of regulation and control as well as resources in the regional level of urban and rural planning, the urban agglomeration development

of the Pearl River Delta faces severe problems (Bräutigam, Xiaoyang, 2011). In 2008, domestic sewage treatment rate and garbage disposal rates of the Pearl River Delta were only 55.9% and 63.9%, far below the level of the advanced urban agglomeration of the world (Ngai, 2004). In addition, a lack of convergence mechanism and a unified standard system is observed between cities and special programs. Lastly, lack of coordination as well as the highly concentrated resource development in urban areas further increased the gap between urban and rural areas in terms of basic public services (Yeung, Lee, Kee, 2009).

Problems faced by the Pearl River Delta reflect the difficulty in continuing the extensive mode of development of this region. In promoting the transformation of economic development, integration of urban and rural planning is crucial. Building a mode to efficiently use resources and to construct urban and rural areas with high quality seems to be an effective way to solve deep-seated contradictions and problems, such as gaps between urban and rural areas (Chen, de'Medici, 2010; Roy, 2009; Cross, 2009).

2. Main industrial economic structure of pearl river delta

At present, with the deepening economic globalization and regional integration, the international financial crisis triggered a major adjustment in the world economic structure and pattern. Figure 1 shows that the Pearl River Delta region is experiencing a critical period of upgrading of industrial structure and the trans-



Figure 1. Regional distribution of the Pearl River Delta

formation of an economic development mode (Douve, 2008). As the consumption structure accelerates the upgrading and transferring of international industries and as technologies continue to move forward, new global technological and industrial developments and other historic opportunities present themselves (Sui, Zeng, 2001). Speeding up the integration of the Pearl River Delta industry layout is an actual need that should be met so that the region can participate in international competition and cooperation. The Pearl River Delta should develop with complementary advantages, joint efforts, and innovations (Davis, 2004).

2.1. International environment of Pearl River Delta industry development

The international financial crisis has prompted developed Western countries to pay additional attention to economic growth, a situation that causes difficulty for export-oriented countries (Douve, Ehler, 2009). We need to vigorously develop energy conservation, environmental protection and a clean-energy technology, as well as to set off a wave of green-energy technology development and low-carbon economy after initially promoting an information technology revolution and knowledge economy development (Lei-lei, 2004; Mostefa Rahli et al., 2015). Multinational corporations have begun to recreate their plans for research and development, investment, trade, production, services, financing, talent, and other economic activities in the world; thus, new changes in the international industry and technology transfer have occurred. We tend to speed up the pace of integrating industries and intellectualizing service industry. The international industrial structure is undergoing profound changes (Buanes, Jentoft, Karlsen, et al. 2004).

These changes will have a major effect on how the Pearl River Delta participates in the global competition and industrial division of labor in the world. To improve the region's position in the global industry value chain; the Pearl River Delta has to conform to the current trend of changing past develop-

ment patterns by relying on resources and the environment; strengthen independent innovation, speed up the adjustment of economic structure; optimize the layout of regional industries; transform the economic development mode; improve the creativity and competitiveness of the economy; and strive to achieve comprehensive, coordinated, and sustainable development (Douve, Maes, Vanhulle, et al. 2007).

2.2. Domestic environment of Pearl River Delta Industry Development

The regional economic development of China has reached an unprecedented height and a series of regional development strategies has been approved (Cartier. 2002; Wang, Cui, 2003). From the Yangtze River Delta, the Pearl River Delta, the central Bohai region, to the northern Gulf Economic Zone, the Economic Zone on the west side of the Straits, and then to the Yellow River Delta region, China is gradually forming a new regional economic map (Chen, Zeng, Xie, 2000). Obviously, this new situation leads to regional competition; thus, the Pearl River Delta has to perfect the innovation and development of ideas, striving to be the vanguard of scientific development that depends on transforming and upgrading the industry as well as accelerating the integration of industrial layout (Zeng, 2011).

2.3. Development status and existing problems of industries in the Pearl River Delta

Figure 2 shows that the development level of high-technology industry and advanced manufacturing industry has been significantly improved, and modern service industry and agriculture have accelerated (Tang, Wang, Zhang, 2009). Ultimately, new progress has been made in the coordinated development of the three industries. The industrial cluster has gradually developed, the industrial chain has been continuously extended, and the industry-supporting system has been comprehensively improved. The development model of industrial cluster based on the characteristic industry has definitely become an important force to promote the development of the regional economy in the Pearl River Delta and Guangdong regions (Cartier, 2001).

3. Research on industrial planning for Pearl River delta economic zone

The industrial layout of Pearl River Delta, in accordance with the idea of "guiding increment and optimizing stock," fostered the development of new industries, optimized the upgrading of existing industries, and integrated dominant industries (Xu, 2008). We also aimed to build the Pearl River Estuary on the east coast for the knowledge-intensive industry zone, the west bank for the technology-intensive industrial belt, and the Pearl River Delta coastal ecological protection type for the heavy chemical industry belt. The entire layout is presented as an A-shaped industrial spatial layout, as shown in Figure 3.



Figure 2. Real map of the Pearl River Delta Economic Zone.

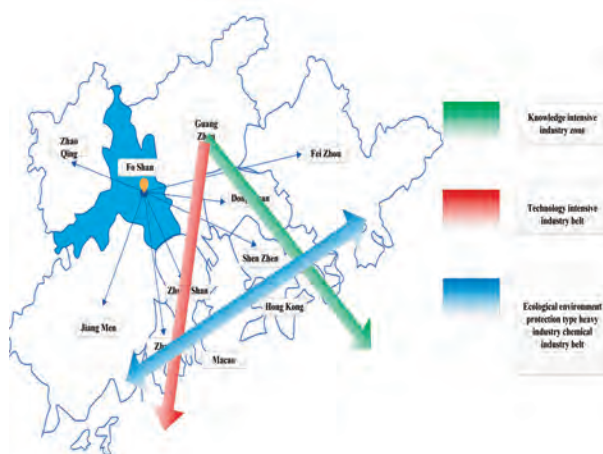


Figure 3. Overall layout of "A" type of Pearl River delta industry integration.

Strengthening the complementary advantages of Guang-Fo-Zhao, Shen-Guan-Hui, and Zhu-Zhong-Jiang area: The Guang-Fo-Zhao economic circle takes Guangzhou as the core, emphasizing the development of the modern service industry and advanced manufacturing industry (Li, Whitwell, Yao, 2005). Figure 4 demonstrates that strategic emerging industries are developed by taking advantage of the layout, and that supporting the development of the modern service industry is crucial. All of the mentioned major economic circles should develop modern agriculture in an appropriate way.

The central city should play an essential role in enhancing the integration of resources. Relying on the advantages of support from the national econom-



Figure 4. Three major economic circles industry positioning map in the Pearl River Delta.

ic center, Guangzhou strives to build an international industrial service center. The three economic circles are highlighted in Figure 5.

4. Study on urban and rural planning for Pearl River Delta economic zone

Based on the theme "Provide an effective spatial carrier for the transformation of the economic development mode of the Pearl River Delta," prescribed by building a low-carbon, ecologically friendly, highly efficient, and highly qualified urban and rural planning and construction model, with the guidance of some relevant requirements of the Chinese government on balancing urban and rural areas and pro-

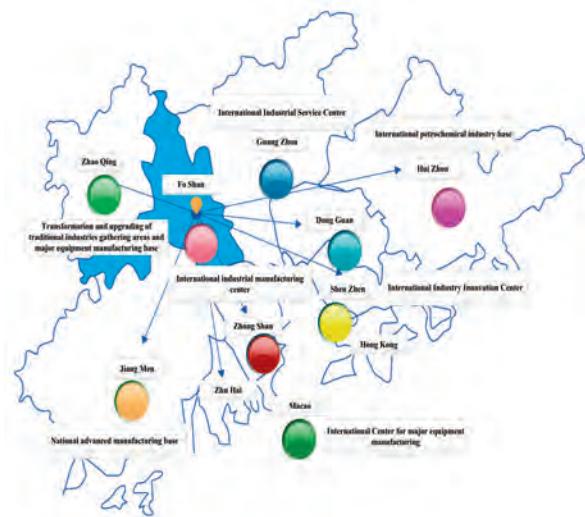


Figure 5. Positioning maps of different cities in the Pearl River Delta.

moting regional coordinated development, integrated regional spatial structure and development strategy have been strongly strengthened, as shown in Figure 6. To cope with problems that urgently need solutions through the integration process, we should actively learn from advanced experiences in developed areas and appropriately conduct planning and implementation from different perspectives in terms of overall model establishment, regional strategic resource control, key area optimization, policy mechanism protection, and so on. The details of the technology planning route are shown in Figure 7.

5. Conclusions

Discussion and analysis of the relationship between the economic structure characteristics, development trend, and integration of urban and rural construction planning in the Pearl River Delta are undoubtedly of practical significance because they provide a reference for the urban planning of other economic entities in China. Under the theme of providing an effective spatial carrier for the transformation of the Pearl River Delta economic development mode, we uphold the principle of building a low-carbon urban and rural planning and construction model. By focusing on the key problems that urgently need solutions, we are expected to grasp the key points and arrange action plans at various levels. Undeniably, accelerating the reform and the development of the Pearl River Delta region is conducive to promoting the strategic adjustment of the economic structure of this region, enhancing the power and vitality of economic development, improving the comprehensive ability of China to withstand international risks, forming a new pattern of regional economic development with positive interaction between the Pearl River Delta and its vast region, implementing the “one country, two systems” policy to maintain long-term prosperity and stability with Hong Kong and Macao, and deepening institutional innovation by exploring new paths and providing new expe-

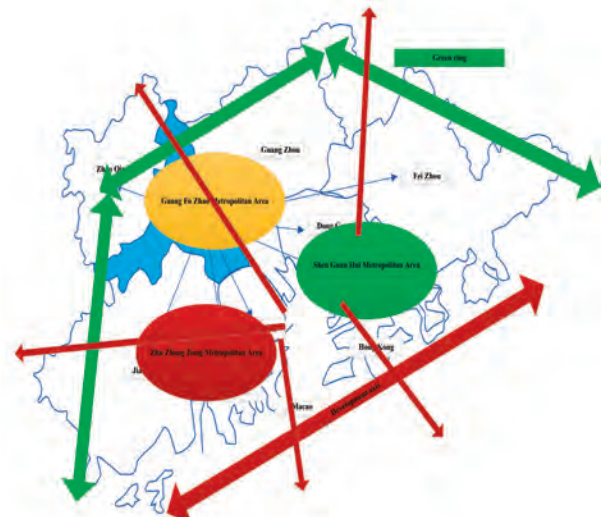


Figure 6. Integrated spatial structure of urban and rural construction planning in the Pearl River Delta.



Figure 7. Technology roadmap of city planning integration process of Pearl River Delta Area.

riences to establish a mechanism for further scientific development.

Acknowledgments:

This work is supported by the National Natural Science Foundation of China (NO. 51208423).

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Author(s):

Guangming Han¹, Jing Zhu², Xiuqin Deng^{3*}

1. Tourism College, HuaQiao University, QuanZhou, Fujian 362021, China;

2. Department of Urban and Environmental Science, Northwest University, Xi'an, Shanxi, 710127, China;

3. Resource and Environmental Science College, QuanZhou Normal University, QuanZhou, Fujian 362000, China.

* Corresponding author: Xiuqin Deng,
Email:xiuqindengksk@163.com