

The Analysis on Xi'an Chan-Ba Low-carbon Ecological Model and Policy Support

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Abstract: This paper focuses on Xi'an Chan-Ba Ecological District as the research object, using SWOT analysis method, analysis the current situation, superiority, disadvantage and model selection of Chan-Ba Ecological District. Under the framework of government policy support, this article proposes that establish a low-carbon transport, low-carbon industry, low-carbon tourism, low-carbon buildings constitute the system of ecological city construction. It is considerable that these measures can help the government speed up the pace of construction of ecological city of Xi'an, enrich the theory of eco-city construction system. Meanwhile, it will provide relevant experience for other cities, realize the sustainable development of the city.

Keywords: Chan-Ba model, low-carbon, eco-city, policy support

1. Introduction

At present, the idea of ecological city construction has become the new trend of other cities' development. Among the typical ecotypes including Shanghai Chongming Dongtan Eco-City, Beijing Fengtai District Changxing international eco-city, Chongqing Beibei town of China Zhu-hai eco-city, Jilin Changchun Jing-yue eco-city, Tianjin Caofeidian international ecological city, Shuangyashan City Shan-shui eco-city, etc.^[1]. Therefore, further research and study the modes of ecological city has become the new topic, which also is a new problem of Chinese urban ecological civilization construction what the government face.

How to develop eco-cities, domestic scholars put forward some advices. Wang Ailan (2008) elaborate some measures on building the ecological city in China from the macroeconomic policy, which should include develop the role of government functions, strengthen the basic role of scientific and technological innovation, build eco-city transportation system, guide public participation and strengthen construction of urban and rural integration concepts^[2]. Wang Qing (2009) from the perspective of city planning think that the construction of ecological city should develop "green traffic", broaden public participation channels, lay down the sustainable development urban planning^[3]. Qiu Baoxing(2009)proposed the low-carbon eco-city concept, advocate the renewable energy construction application, including the development of green architecture and low consumption of building policy, the implementation of building energy-saving subsidies, northern thermal change and large-scale public building energy-saving and monitoring^[4], in order to promote the low-carbon eco-city development.

As a historical and cultural city of Xi'an, the governments have done some attempts in the building eco-city. The construction of Chan-Ba Ecological District has aroused comprehensive concerns to the society. This paper based on studies the characteristics of Chan-Ba Ecological District, analysis its development advantage and current problems, and then put forward countermeasures and suggestions.

2. The Location and Characteristics of Chan-Ba Ecological Model

Chan-Ba Ecological District in the east of Xi'an City, North to the Wei River, south to Loop high-speed, west to West Copper Road, east to Ankang Railway, including the Chan River, Ba River four sides of the two north-south strip area^[5]. The planning region's total area is about 129.1 square kilometers, including Wild Goose Pagoda, Baqiao and Weiyang three areas, which focuses on the control area about 89 square kilometers, the central area about 50 square kilometers, as a whole area of layout was "one-centre and

three-wing".

Chan-Ba low-carbon ecological model, through the long-term low-carbon operational mechanisms, draw up low-carbon policies and adopt technologies control greenhouse gas emissions, build green Chan-Ba and ecological Chan-Ba in order to better achieve sustainable development Chan-Ba.

2.1 The characteristics of Chan-Ba ecological model

2.1.1 Humanities Chan-Ba

Humanities Chan-Ba, what consist of is a nature, values and aesthetics which advocating nature and people-oriented for target. Building Chan-Ba Ecological District what should insist on the idea of harmony between man and nature, the historical accumulation, sustainable development and poetic homes. In history Chan-Ba region's architecture and design with a strong people-oriented on ecological concepts. Chan-Ba Ecological District boasts a large number of culture-oriented elements, including the remains of the BanPo Village of matriarchal community, Baqiao Bridge in the Sui Dynasty, Guang Yun Tan, Baling Mausoleum and Duling Mausoleum, etc. as well as other historic sites and scenic spots. Nowadays, the construction of Chan-Ba Ecological District is ecological practice which link the traditional and modern, history and practice.

2.1.2 Financial Chan-Ba

The Zone of Chan-Ba Financial and Business is a unique symbol of financial Chan-Ba. The project, located at west bank of Bahe River where the main site for 2011 World Horticultural Exposition. Expected by 2020 is in the Chan-Ba Peninsula, opposite to Bahe River, Chan-Ba Ecological District economic aggregate will reach 700-900 billion yuan. The Chan-Ba financial business district's financial value will add 150-250 billion Yuan. Accounts for Xi'an new parts of financial value added more than 50%.The construction of Chan-Ba Financial and Business Zone promote regional economic growth, optimize Chan-Ba financial environment, establish a good interaction between financial development and industrial development, stimulate the economic growth of peripheral area and even West China and finally grow into a key financial center that takes its root in West China but radiates to various regions in China and the Euro-Asian countries. Financial Chan-Ba will take off the economy of Xi'an and achieve Chan-Ba ecological development of financial business.

2.1.3 Green Chan-Ba

Chan-Ba Ecological District, as the ecological compensation area of Xi'an, it will ease the urban noise pollution and heat island effect. Chan-Ba National Wetland Park as the first state-level water ecosystem protection and restoration of the pilot project, shoulder Chan-Ba Ecological District's recharge function. In addition, the government through the implementation of five projects including Yanminghu lake project, Taohua Tan project , Guangyun Tan ecological project , Chan River clean water projects and Ba River into Wei River Estuary project, basically solve the river pollution, garbage siege, dredging destroying the three major ecological disaster and build the basic framework of green Chan-Ba Ecological District^[6].Green Chan-Ba, with its unique ecological charm, speed up the pace of eco-city, truly become the eco-labeling and green lung of Xi'an.

2.2 The advantages of Chan-Ba ecological model

2.2.1 Historical factors

The name of Chan-ba Ecological District is derived from Chan River and Ba River, two water systems among the famous "Eight River around Chang'an" in history, it has always been an area of strategic significance. What's more, endowed with pleasant landscape and profound cultural connotations, Chan-Ba has long been well-known as the land of plenty, auspice and elegance.

In the time immemorial, Chan-Ba nurtured the splendid culture of Banpo Painted Pottery. Later, during the golden ages of Tang Dynasty, Chan-Ba became the important water source and the artery of water carriage in Chang'an. During the time, taxes and tributes from the whole country were transferred to Chang'an via Guangyun Pool of Chan-Ba. In addition, surrounded with willows standing along rivers banks and egrets flying over the water surface, the superb scenery of Chan-Ba highlighted by "Dancing

Willow Catkin at Bahe” at that time attracted a large number of tourists from far and near. A host of nobles and high officials, built a number o villas here, which made Chan-Ba the “Best Resort Area nearby the Capital Chan’an”.

2.2.2 Policy guidance

In September 2004, after borrowing ideas from the successful experience of urban development both in domestic and overseas cities, Xi’an Municipal Commission and Xi’an Municipal People's Government initiated the construction of a new ecological urban area—Xi’an Chan-Ba Ecological District. This is one of the important construction of "Xi'an Eleventh Five-Year Plan”, and also is Chan-Ba ecological model construction policy opportunities. Its overall objective is to adhere to development” taking river management promote regional development, developing new ecological district reconstruction support”, through river regulation, enhance regional quality of location advantages, relying on the geographical advantage, makes the ecological demonstration zones and new bright spot in building a low carbon city of Xi'an Chan-Ba ecological zone^[7].

2.2.3 Demonstrative project

Chan-Ba Low-carbon Economy Industrial Park Project is located in the Chan-Ba National Wetland Park, covering an area of about 500 acres, including Carbon Trading Zone, Low-carbon Modern Service Area, Circular Economy Industrial Zone and related services supporting area. This region will become the northwest most internationalized ecology industrial park, and to realize the Chan-Ba ecological model play demonstrative effect.

2.3 The disadvantages of Chan-Ba ecological model

2.3.1. The lag of transport network

The bus lines network in Chan-Ba Ecological District remains at a relatively low level. The bus line mainly concentrated in south east and south two area, the distribution of bus lines route is unevenly. Most of the bus station in Chan-Ba Ecological District is the starting point for the line, does not cover most of the regional bus lines, leading to a serious shortage of public transport supply. In Chan-Ba Ecological District mostly rural highway road, poor facilities, and management of lower-level confusion. What’s more, as a newly developed tourist area, the acute shortage of tourist paths, from main roads to tourist traffic is inconvenience, resulting in attraction accessibility is not high, can not meet the current and future development needs.

2.3.2. The inadequate of scientific coordinate efforts

The development idea of Chan-Ba Ecological District is to focus on the advantageous resources in small plots to create highlights, and then return again bring such benefits which drive a small part of the of industry rolling development. Although the investment in a short time become effective, the lack of planning for the unity and coordination. It is difficult to ensure strict implementation of the planning, may deviate from the original purpose of planning. At the same time, due to the rolling development make the cost increases. It is not conducive to the effective increment of state assets.

2.3.3. The improvement of infrastructure construction

Currently, few residents in Chan-Ba Ecological District, municipal infrastructure and social undertakings facilities have no obvious pressure. But in the long term, regional planning should focus long-term and scientific development. With the development of ecological idea to guidance infrastructure, avoid repeated construction, reduce the residents living inconvenience. When the market began to call for municipal infrastructure and social undertakings facilities, avoid at the end of the district, it has no enough space resources to accommodate enough facilities.

3. The Suggestions of Chan-Ba Low-carbon Ecological Model in the Future Development

Through the above analysis, the author thinks that the Chan-Ba Ecological District has many advantages, and put forward some suggestions for the development of Chan-Ba ecological zone.

3.1 The government policy support of Chan-Ba low-carbon ecological model

The government should strengthen the low-carbon policy guidance and propagandize ecological values and environmental ethics which is the core of ideas. Establish Chan-Ba low-carbon planning with long-term effect mechanism and expert advice mechanism; formulate a reasonable emission reduction target and specific programs, implementation from each field emission target. Comprehensive prevention, control the environmental pollution and carbon emission, solid waste pollution, carry on the Omni-directional science monitoring; establish a set of Chan-Ba low-carbon ecological zones evaluation index system construction. Through the investment and finance system to encourage the carbon emissions trading market, the implementation of the issuance of the special funds; establish a government leading, market promote, and enforcement supervision, public participation mechanism, through those measures guarantee the construction of Chan-Ba ecological model.

3.2 The industry support of Chan-Ba low-carbon ecological model

In the macroeconomic environment, the governments adhere to accelerate the transformation of economic growth, promote the upgrading of the industrial structure, actively adopt the new low-carbon technologies and reduce the pollution emissions. Establish the low-carbon industrial system, comprehensive utilization of the recycling resources. The government should attract the non-polluting industries investment and develop green and environmental protect; strengthen the connection between the pillar industries, promote recycling economy. The only way to promote sustained economic growth within the region is the formation of the financial industry as the support of environmental protection ecological zone. Only in this way can we drive regional economic growth, structure Chan-Ba ecological zone with financial support for the environmental protection industry, realizing the establishment of Chan-Ba ecological models low-carbon industry support.

3.3 The buildings support of Chan-Ba low-carbon ecological model

In Chan-Ba Ecological District, the government should set up the building energy efficiency standard for emission reductions adhere to "zero consumption and zero emissions". In the residential area, the public buildings and industrial parks within the implementation of emission reduction standards. Chang'an tower as Xi'an International Horticultural Exposition one of the four landmarks, this edifice has kept the Sui-Tang period in the square. In the structure and material by steel structure and glass, reflecting the Chinese architectural culture connotation, showing the modern urban fashion style. This tower is not only the perfect combination of the architecture and green building techniques, but also a low-carbon demonstration and practice of architecture. It will become the landmark of Xi'an. Establish the market mechanism of low-carbon buildings, build the energy conservation and emission reduction, fully display the resource conservation and environment friendly demonstration effect of green, guiding green consumption, realizing low-carbon building policy support of Chan-Ba ecological model.

3.4 The traffic support of Chan-Ba low-carbon ecological patterns

The diversification of the urban low-carbon traffic system in Chan-Ba Ecological District, where advocate the development of rail transport as the main body, the bus rapid transit for complement, ordinary bus to assistant system, realizing the sustainable development of low-carbon traffic. To guide residents and visitors use public transportation tools. The construction of bicycle roads and free bike storage system follow the example of Beijing, Shanghai and Hangzhou's free bike system develop a Chan-Ba feature bicycle rental system, make the combining of bicycle transportation and other transport modes forming an organic whole^[8].The prominent feature of Chan-Ba Ecological District is the construction of tourism lanes in tourist areas to facilitate the interface between the internal and external roads, try to avoid fast road cut apart each scenic spot. Strictly control the vehicle exhaust pollution and traffic noise pollution, prohibit excessive emissions from vehicles on the roads, accelerate taxis and buses to clean energy alternatives, improve vehicle emission inspection and repair capabilities, ensure

Chan-Ba ecological model to achieve the development goals of low-carbon traffic, construct a low-carbon, fast and efficient integrated transport system.

3.5 The tourism support of Chan-Ba low-carbon ecological model

From the 2011 World Horticultural Exposition held in Xi'an to the Chan-Ba National Wetland Park formal state approval; from the Chan-Ba Financial and Business Zone settled and start construct to the Chan-Ba Ecological District become the Euro-Asia Economic Forum of permanent site, etc. All above mentioned can prove that the low-carbon tourism is feasible. On the public side, propagandize low-carbon concept and encourage the low-carbon action, provid low-carbon traveling consultation, set up the bike rental points, provide low-carbon diet information; advocate tourists bring their own garbage bags and environmental protection tableware; encourage businesses do not provide one-off tableware. On the management side, encourage walking and bicycle, due to the transport of carbon dioxide emissions at a minimum; arrange for electric vehicles to help transfer between scenic spots, use of electric vehicles transporting guests fixed time, truly realize Chan-Ba ecological model low-carbon tourism support.

4. Conclusion

Chan-Ba Ecological District will be estimated by year 2020. The population size will over 550,000. Through the relevant policies to support, speed the industrial upgrading, green traffic network construction, ecological residential construction and the construction of low-carbon tourism development, build low-carbon city development Chan-Ba ecological model, effectively improve the ecological environment, expand Chan-Ba development space, enhance the comprehensive capacity of Chan-Ba, create green, safe, human environment realizing the sustainable development, create the first-class livable and business demonstration area, for other city in China of building ecological city provide reference. Make Chan-Ba become natural, historical, cultural, landscape type of urban ecological area.

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