Urban Planning Project about HI-Tech Waterfront City

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Abstract. The master plan is a dynamic long-term program that provides a conceptual layout to guide the city's future development from diverse aspects. Each urban designer plans out the general content of the corresponding area. The main aim of this article is to examine some of the urban planning theories through the schemes and developments of HI-Tech Waterfront City. Addressing this qualitative project entails attempting to understand (1) the functions and purposes of this district; (2) the emerging social phenomena of the development. Our group finds gentrification is a social phenomenon that is bound to occur in urban development. A smart city has gradually become an important topic of city planning in the post-pandemic era.

Keywords: city development, city expansion, gentrification, smart city

1 Introduction

Currently, China is building a regional economic layout for high-quality development, and cities are the main battlefield for promoting high-quality development. By the end of 2019, there were 684 established cities in China, including 4 municipalities directly under the central government, 293 prefecture-level cities (including 15 sub-provincial cities) and 387 county-level cities. To promote the high-quality development of cities, on the one hand, we should promote the advanced industrial base and modernization of industrial chains, improve the quality efficiency and core competitiveness of the economy, and lay a solid material foundation for the full start of the urban modernization journey. On the other hand, we should accelerate the new type of urbanization with people as the core, implement urban renewal actions, promote urban ecological restoration and functional improvement projects, coordinate urban planning, construction and management, reasonably determine the size of cities, population density and spatial structure, and promote the coordinated development of large, medium and small cities and towns.

2   The overall development of Zhengzhou and the construction of the Hi-Tech Waterfront City

In recent years, Zhengzhou has made the whole city's economy develop rapidly with various factors. Zhengzhou was listed as a new first-tier city in 2018, with a population of over 10 million and a GDP of one trillion, and its development speed has attracted the attention of Chinese people. According to the analysis of our group, the main reasons are as follows:

(1) As the transportation hub of the Central Plains, Zhengzhou Railway Hub is located in the central heart of the Beijing-Guangzhou Railway and Longhai Railway, which are the major national railway transportation arteries. It is located in the centre of several domestic large and medium-sized railway hubs, such as Beijing Railway Hub, Xuzhou Railway Hub, Fuyang Railway Hub, Jinan Railway Hub, Xi'an Railway Hub and Wuhan Railway Hub. It has convenient contact with all major hubs and has important political, economic, cultural and cultural significance.

(2) With the strong support of Henan Province, with the implementation of the strategy of western development and the rise of central China, most provinces in the central and western regions of China have implemented the strategy of strengthening the province, thus forming a pattern in which one city dominates the other, and Henan is no exception. As the capital of Henan Province, Zhengzhou has received strong support from Henan in the past ten years, and its economy has developed rapidly. Its GDP has exceeded the trillion marks. Today, Zhengzhou's GDP accounts for only about 1/5 of the province's total, while provincial capitals like Chengdu, Wuhan and Xi 'an account for more than 1/3. Therefore, Zhengzhou still has a lot of room for improvement.

(3) National policy support: In recent years, Zhengzhou has been paid more and more attention by the state. Zhengzhou has become a national comprehensive transportation hub, forming a high-speed rail, railway, high-speed transportation network and so on. Zhengzhou Airport Economy Zone, the only national airport economic comprehensive experimental zone in China, is also the core component of Henan Pilot Free Trade Zone, and the central city of the Central Plains urban agglomeration of the national urban agglomeration.1 In recent years, it has been positioned as a national central city. Therefore, the state attaches more importance to the development of Zhengzhou than the general sub-provincial.

Zhengzhou is mainly divided into Huiji District, Zongyuan District, Erqi District, Jinshui District, Guancheng District and Zhengdong New District. Zhengzhou Airport Economy Zone and National High and New Technology Industries Development Zone. Zhengzhou National High and New Technology Industries Development Zone is ascience and technology industrial park approved by governments at all levels. It is a specific area set up to develop high-tech, relying on an intellectual, technology- intensive and open environment, relying on technological and economic strength. A comprehensive base was established by absorbing and drawing lessons from foreign advanced scientific and technological resources, funds and management means, implementing preferential policies in taxation and loans and various reform measures, realizing local optimization of the soft and hard environment, maximizing the transformation of

scientific and technological achievements into practical productive forces, and promoting the combination of scientific research, education and production. Zhengzhou National High and New Technology Industries Development Zone, located in the northwest ofZhengzhou, was mostly attached to heavy industry in the early stage. It started construction in 1988. After years of development and expansion, At present, there are 116 National High and New Technology Industries Development Zones in China. Zhengzhou National High and New Technology Industries Development Zone ranks 12th comprehensively, and its scientific and technological innovation capability ranks 7th2.

The rapid development is accompanied by the expansion of the city. At present, the National High and New Technology Industries Development Zone are divided into four areas: High-tech Old Town, Hi-Tech Waterfront City, Changxi Lake New District and Eco-industrial Zone. Except for the completion of the construction of the high-tech old town, all the other high-tech new towns are planned and constructed in 2014. Take the Hi-Tech Waterfront City project as an example, which is also the research object of our group. Hi-Tech Waterfront City is located in the core of a high-tech new city, with Tiande Lake and Tianjian Lake as the core, with a total area of 6 square kilometres and a total investment of 10 billion. It is the core area of Zheng Luoxin National Independent Innovation Demonstration Zone, the core carrier of the Central Plains Science and Technology Innovation Valley, surrounded by Beidou navigation, electronic appliances, big data, cloud computing, and network security, and building a high-tech industrial chain. With the city orientation of the Central Science and Technology Zone, the construction goal is a smart and ecological new city, and it has been selected as the core area of 32 cities in Zhengzhou.

According to the master plan of the National High and New Technology Industries Development Zone from 2014 to 2030, the government plans to build the CBD of Zhengzhou West District with the Huxindao business district as the centre, and build Hi-Tech Waterfront City into the future commercial technology centre of Zhengzhou West District. The reason why we chose this project is that we think a smart city is the future direction of urban development. Hi-Tech Waterfront City, as the future economic and technological centre of Zhengzhou West District, has applied the idea of the smart city in its planning concept, and as a science and technology industrial park, it also has a lot of high-tech as its support.3

During the research period, we adopted personal life experience (Robin) for many years. It took three days to analyze the ideas of communicating with people living around and collecting the planning drawings and purposes of Hi-Tech Waterfront City on the Internet. No matter the construction and development of the high-tech old town in the past years or the future planning of Hi-Tech Waterfront City, the overall planning and development of Zhengzhou National High and New Technology Industries Development Zone is excellent, but there are still some problems worthy of our study and discussion.

3   Phenomena that emerge with the development

Gentrification is one of the phenomena of social development. It refers to the fact that an old district has gathered low-income people from the beginning, and the land price and rent have risen after reconstruction, attracting higher-income people to move in and replace the original low-income people. We believe that the development of the city can't be separated from the regional reconstruction, which will bring more perfect facilities, more comfortable houses and a more beautiful environment. These factors attract richer people to live in this area or develop businesses, but at the same time, they bring about the increase in surrounding house prices, which will make it difficult for people who originally lived here to accept high prices or house prices and have to move out of here to live in more remote areas.4

"To the extent that 'gentrification' is generalized to stand for the 'eternal' inevitability of modern renewal" (Neil Smith, 1996).5 Our group thinks that this is an inevitable stage of urban development and it is inevitable. Through my (Group member: Chenwei Liu) cognition of living here for a long time and the conversation and communication with the surrounding residents, I have concluded that about fifteen years ago, the high-tech old town just started to develop. Because of its remoteness, Zhengzhou National High and New Technology Industries Development Zone was a more important residential area away from the urban area at that time as a choice for large-scale work areas and low-income groups. Because of the low rent and housing prices and a large number of employment opportunities, many low-income groups in Zhengzhou come here to buy or rent houses and exchange more transportation time for lower living costs. In the beginning, most of the houses built here are mainly just needed. A typical example is that there are two residential lands surrounded by the second-class industrial land in the planning of the old high-tech zone.

At that time, the nearby residents were mainly people who worked in nearby factories or couldn't accept the high prices in the city centre. However, with the entry of the capital and the development of the city, Zhengzhou National High and New Technology Industries Development Zone has completed the urbanization process, where a large number of shopping centres have been set up, and more and more large companies have come here. With the development of Zhengzhou National High and New Technology Industries Development Zone, Gentrification has been completed in the old high-tech area.

For the original low-and middle-income groups, due to the development of this area, the consumption level and house prices have risen, and with the industrial upgrading, a large number of original industrial parks have moved out, leaving only high-tech parks, so most of the former residents have to leave this area and live in more remote areas, and they will have to pay more transportation time for it. Maybe some middle-class people used to buy houses here, without the pressure of rent, but because of the rising consumption level and rent in this area, the living standard of those left behind is more difficult.6

Nowadays, the National High and New Technology Industries Development Zone can be classified as a middle-level city in Zhengzhou because of its urban development. More and more people with a certain economic level come here to live, and the people

who originally lived here have been replaced. The urban nature of the National and New Technology Industries Development Zone has also changed from the original high-tech industrial development zone and low-cost residential area to a city integrating commerce, residence, science and technology. Residents who used to live in the old high-tech district went to other places because of the demolition and resettlement houses or prices, and some of them went to Hi-Tech Waterfront City in the new high-tech district today.

Hi-Tech Waterfront City, as the planned future CBD of the West District, will see rapid development in its economic level, house price, price and other aspects in the future. In the existing planning of the Hi-Tech Waterfront City plate, a total of 9 residential quarters are under construction or have been completed, of which three residential quarters are improved middle-grade residential quarters, four residential quarters are ordinary commercial houses, and two residential quarters are demolition and resettlement houses in local rural areas.

In China, land does not belong to individuals, and the state will, for the sake of urban development and construction, agree to the legal act of demolishing houses and appurtenances within the scope of construction land according to the requirements of urban construction planning and land use documents approved by the government, resettling units and residents within the scope, and making compensation for their losses. For this compensation, there are two methods: paying cash and setting up resettlement houses. The development of the city is a process of continuous reconstruction. With the smooth implementation of China's economic system reform and the gradual establishment of the socialist market economy, the productive forces have developed at a high speed. For the overall planning of the city, and sometimes for the needs of national special projects, it is necessary to demolish and relocate the original buildings, to achieve the overall uniformity or rational utilization of the gradually strained state-owned land resources, and to avoid the emergence of Urban Informality which is different between a region and its surrounding living environment and people.

As resettlement houses, most of the people living in these two communities are former local villagers, and their living facilities and income level are lower than the overall development of Hi-Tech Waterfront City in the future. I think that with the gradual completion of the Hi-Tech Waterfront City project, the cost of living around here will be higher and higher, and the phenomenon of Gentrification will also appear in this area shortly.

4   Post COVID-19 era with Smart City

The "15-minute living circle" is a multi-element composite urban design concept, which is attracting worldwide attention and has been implemented in the urban planning of Japan, the United States, Australia, Canada, France, the Netherlands and other countries. The essence of the "15-minute living circle" is to create a community environment that enables people to reach most service facilities and leisure and entertainment places within 15 minutes walk. Reasonable urban design can be used to enhance the accessibility of places and promote exchanges in more areas. In our group's opinion,

if almost all the residents' daily needs can be solved in this area, the use of private cars will be reduced, and the residents in this area will also reduce the number of long-distance trips.

China is now in the post-epidemic era. If people can get everything they need within their walking distance, the demand for activities in other areas will be reduced, so that the local epidemic outbreak can be controlled in a limited way. There is almost no COVID- 19 in Zhengzhou now, and the policy of containment has been cancelled. Now Zhengzhou has adopted the normalization method for the prevention and control of the epidemic situation and residents' life in the post-epidemic era, and the whole city has set up nucleic acid detection huts. Each hut is ten minutes walk away, and residents must hold 72-hour accounting test results before they can use public transportation or enter shopping malls and other crowded areas. But if you don't have and won't be impressed by your usual life, you can still go in and out of the community and buy necessities.

COVID- 19 will be a thing of the past one day, but epidemics often appear in every generation. It can be said that the appearance of COVID- 19 has accelerated the development trend of the "15-minute living circle", and at the same time, it has taken a step toward the smart city and multifunctional city design. It seems that the "15-minute living circle" is a great design plan and the direction of the future city, no matter of epidemic prevention and control, transportation, environmental protection or residents' life. Today's Hi-Tech Waterfront City, as the core territory of the future political, economic and cultural of the National High and New Technology Industries Development Zone, gathers high-tech industries such as Beidou Navigation, Cloud Computing Industrial Park and IT Industrial Park, and will be the gathering place of 900,000 intellectuals in the Central Plains in the future.

The ecological landscape of "one river, two lakes and six parks" has been planned in the area.7 There are seven schools in the centre of Huxin Island, a gymnasium, swimming pool, library-, theatre, service centre "five halls in one" and a top-three hospital. In the south of Lianhua Street, east of Cuibai Road and within 6 square kilometres of the contract around Tianjian Lake, Tiande Lake and Xushui River, a 15- minute urban life circle with complete living facilities and numerous industries have been formed.

In our opinion, the future Hi-Tech Waterfront City is a collection of all residents' living needs, such as ecological environment, medical care, schools, businesses, various service facilities, etc. ,8as well as a variety of information industry parks in the region as technical support. In the post-epidemic era, the "15-minute living circle" in this region will certainly show its role.

5   Conclusion

We think in the planning of Hi-Tech Waterfront City, except for some places where the planning between the old and new national high and new technology industries development zones has not been adjusted properly, some factories with slight pollution have not been moved out in time, and other places have a good development direction and

prospect. Some researchers believe that Scholars present three main arguments against the smart city: "that it is incompatible with an informal character of the city, that it subjects the city to corporate power and that it reproduces social and urban inequalities" (Maroš Krivý, 2018)8. But from our point of view. First, big data and smart cities are the major trends in the future. Zhengzhou has built a smart city based on the app. The smart city is a part of the city rather than a change of the city. Second, the smart city of Zhengzhou will increase the national power, not the corporate power. The national power can protect the Chinese people better, according to Chinese national conditions. Third, equality or not has never been decided by smart cities. Before the Internet appeared, there were many inequalities in the world. The information provided by the smart city lowers the threshold of information, which has promoted the fairness of society.

6   Acknowledgement

7   Reference

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