Imagination of the Yangtze River Demonstration District

Xin Lin¹, Zhehua Du²

¹Hubei Province Engineering Consulting Co., LTD., Wuhan, Hubei, 430071, China
²Wuhan Second Ship Design and Research Institute, Wuhan, Hubei, 430205, China

*Corresponding author’s e-mail: 754726516@qq.com

Abstract. The public has been full of expectations towards the Yangtze River Demonstration District since its debut. It is predicted that the Yangtze River Demonstration District will be the key area of Wuhan’s urban construction in the next five years. This paper introduces the background and significance of the site selection whose advantages and disadvantages are analyzed and then the construction progress and conditions. Based on urban planning, the paper analyzes the investment estimation and financing. Finally, the paper summarizes the problems existing in the construction and puts forward some suggestions. For example, an independent organization should be established and the whole process of consultation should be carried out.

1. Background and significance of The Yangtze River Demonstration District

The decision of building the Yangtze River Demonstration District by Wuhan Municipal Government has a historical background and special significance. Wuhan is in the transitional stage from rapid urbanization to stable urbanization and from mid-industrialization to late-industrialization. Although it is positioned as the National Central city, compared with the first-tier cities such as Beijing and Shenzhen, the proportion of added value of tertiary industry in GDP of Wuhan needs to be improved urgently. With the policy of The Belt and Road Initiative and Yangtze River Economic Zone, Wuhan wishes to take this opportunity to achieve industrial upgrading and strategic transformation. Wuhan is looking for a new driving force for development, promoting regional mutual development and improving the quality of the city. In this case, it is possible for Wuhan to become a good city rather than a big one [1].

The Yangtze River Demonstration District in Wuhan is being planned. The plan intends to optimize the main axis of the Yangtze River and make The East Lake become the Urban Eco-green Heart Area, which can be positioned as a world class highlights of the city. Therefore, the construction of Yangtze River Demonstration District is the need for expanding urban development space, for planning and building the highlights of the city, for the industrial transfer of becoming one the first-tier cities. The proposal is to address the needs of industrial transfer in the first-tier cities and for pursuing a better life of Wuhan people as well [2]. If the application for State-Level New Areas is approved, it will drive Wuhan into the fast lane, which means that Wuhan is a step closer to the goal of “revitalizing Wuhan and building a national central city”. The Yangtze River Demonstration District is the driving force of the development of Wuhan [3]. On the contrary, if the planning is put on hold, Wuhan will miss a good opportunity for development. It's like the train that just accelerated has to be slowed down.
2. The construction progress
In July 2017, local government announced that the site of the Yangtze River Demonstration District, and the final site selection was Shenjiaji and Wuhu. In August of the same year, the land development was restricted, and in September, the Wuhan committee of the Communist Party of China (CPC) and The Yangtze River Demonstration District management committee were set up to coordinate the planning and construction. Yangtze River Construction&Investment group co., LTD was established to be an investment and financing platform.

In mid-May 2018, the winning bidder was identified for the urban design (concept) scheme. On June 26, The Yangtze River Demonstration District management committee and the Department of Natural Resources organized a mid-term inspection meeting on the major special planning. On June 29, the rough planning graph of The Yangtze River Demonstration District was unveiled for the first time at the Boao Forum for Asia. On July 24, the overall planning was appraised by the national expert group. It means that the planning work of the Yangtze River Demonstration District is progressing steadily. The application of state-level new areas is contained in the government work report to 2018 of Hubei province. At present, the application is under way and the infrastructure construction of the Yangtze River Demonstration District is progressing steadily. The investment attraction has won its initial success [4].

3. Advantages and disadvantages analysis of the site
There are both advantages and disadvantages for the candidate sites.

3.1. Advantages
There are four advantages.

3.1.1. Shenjiaji, Wuhu is located in the extension line of the main axis of the Yangtze River with the obvious advantage in the aspect of location. In the past, Wuhan was a multi-center, multi-group city without a center. The main reason is the separation of rivers and lakes, which affected the urban layout. With fewer cross-river passages, the three towns on both sides of the Yangtze River developed separately. However, with the construction of bridges and tunnels connecting three aspects, traffic is no longer part of a restriction. In the future, "Yangtze River" is the central axis of the city, and the principal axis of the Yangtze River is the pivotal axis of Wuhan, which is situated in the world-class ecological landscape, and is a unique principal axis. The urban principal axis and its extensive line will be the strategic development area.

3.1.2. Shenjiaji Wuhu is an important part of Wuhan's ecological framework. Wuhan's ecological pattern composes of two rings, two axes, six wedges and multiple corridors. The two rings refer to the inner and outer rings of urban ecology. The two axes refer to the Yangtze river ecological green axis and the ecological green axis of mountains and rivers. and the six wedges refer to the six radial large-scale ecological green wedges of the Fuhe River, Wuhu, East Lake, Tangxun Lake, Qingling Lake and Houguan Lake, which enter the central urban area from six directions and connect with the greening system in the urban area. In the future, the six green wedges will be upgraded to country parks. Wuhu is just in the northeast direction of this ecological framework, and it is a fundamental ecological place for development.

3.1.3. Advantages of location development. It is better to choose new districts with larger development space than to build them in old districts, therefore, Dragon king temple, Sixin Eco-cities in Wuhan are not qualified. In addition, the site selection of the new town needs to provide a certain scale of land, so Nananzui is not qualified because of its land constraint. As the land near the main urban area of Hankou has greater potential for development, Qingshanji and Yangluo have also been eliminated. Finally, Shenjiaji Wuhu stand out from the other 12 alternatives.
3.1.4. Transportation advantage. The Yangtze River Demonstration District is Wuhan's northern transportation gateway facing Beijing, Hongkong, Macao, Shanghai and Rongshan Expressways. It is the core area of airport, railway station, high-speed railway, waterway, highway and wharf. The construction of metro, high-speed, Jiangbei Expressway and Tianxingzhou Yangtze River Bridge makes the area have a direct access to airports and high-speed rail.

3.2. Disadvantages
Although Shenjiaji and Wuhu have some advantages, but they also have some disadvantages which are why they had not been developed in recent years.

3.2.1. The flood invasion. Wuhu has been a flood storage area historically and there are the serious flood control problems in flood season. In the event of major floods, Shenjiaji has been prone to danger. In 1954, a huge flood broke out. Dijiao to Shenjiaji section was severely invaded. In 1998, all residents of Shenjiaji were evacuated. In 2016, the dam of Shenjiaji section appeared "dispersed impregnation". If without a large number of armed police officers and soldiers and local people fighting against the flood, this section might be in great danger. In spite of this, the priority is to increase the flood control standards and to carry out comprehensive regulation of the water system, which might increase the construction cost.

3.2.2. The severely divided land. The road network system in the planning area is not satisfying, and the land is divided into fragmented blocks due to the obstruction of regional railways, highways and military land, which increases the difficulty of land planning and development. In addition, it is extremely difficult to coordinate the construction of the region across administrative divisions.

Therefore, the selection represents the determination and confidence of the Wuhan government.

4. Analysis of construction conditions
After years of construction, Shenjiaji has a certain foundation. It is a strong support for the construction of the new city.

4.1. The foundation of the area
In 2013, Wuhan City designed a project for Shenjiaji and formulated The Hankou Science and Technology New Town Implementation Plan (2013). Hankou Science and Technology New Town are adjacent to Houhu Residential New Town in the West and to Hankou Business District along the Yangtze River in the south. It covers a total area of 21.91 square kilometers, ranging from west to Hanhuang Road, Jiefang Avenue, south to Handi Road, east to the Yangtze River and north to Fuhe New Dike. It is planned to build a new compound city with waterfront characteristics, which integrates the multiple-functions of enterprise headquarters, industrial research and development, residence, urban leisure.

At present, the land and projects that have been confirmed include: Zhixing College of Hubei University, Chengkai Tianxing Garden, Ping’an village, reserved military land, Yangtze River Pearl, Wanda Football Super Cup Sports City; The roads that have already been implemented include: Third Ring Road, Xingsheng Road, Wangsheng Street.

4.2. The construction of the adjacent regions is in full swing
Erqi Binjiang Business District starts from Binjiang Avenue in the east, goes to Jiefang Avenue in the west, Huangpu Avenue in the South and Handi Road in the north. Not far from Shenjiaji, it is located on the main axis of the Yangtze River. The aim is to build an international headquarters business district with the development of enterprise headquarters, business office, high-end business services, cultural tourism and creative industries as the main body, focusing on displaying historical and cultural features, modern urban landscape and ecological livable functions.
At present, Huafa, Greentown, Vanke, Ruian, New World, CITIC Taifu, Guohua Life, Taikang Life and other businesses have purchased land successively in Erqi Binjiang Business District. Among them, the northern section of Erqi Road is characterized by commerce, while the southern section of Erqi Road is dominated by residential buildings. The construction of the business district will drive the development of Shenjiaji.

In summary, the area will be built sooner or later. With the help of the Yangtze River Demonstration District, Wuhan will be pushed to a new development ladder.

5. Urban comprehensive planning
According to The master plan for The Yangtze River Demonstration District (2017-2035), the city will be basically built into a model modern city led by innovation by 2035. By then, the coverage of 600 meters of population and posts in the subway station will be more than 60%, and that of 500 meters of bus station will be 100%. The intelligent scheduling of green public transportation in the whole network will be realized. The blue and green space in the region accounts for more than 65% of the planned area and has more than 400 kilometres of greenways. The coverage of home-based care facilities and clean energy reaches 100% with 15-minute community life circle fully equipped [1].

6. Investment and financing model analysis

6.1. Investment estimate
According to statistics, the starting area of Yangtze River Demonstration District is about 30 square kilometers, and its infrastructure investment will exceed 190 billion yuan. It takes the Erqi Binjiang Business District as an example.

The total land area of Hankou Binjiang Business District is 83.6 hectares, and the net land area for development is about 53 hectares. Its plot ratio is 4.7 with its infrastructure investment of 5.3 billion, and its investment intensity reaches 6300 yuan per square meter. According to the calculation of the same investment intensity, the aggregate investment in the infrastructure of the starting area will exceed 190 billion yuan, and it will far exceed the municipal construction investment plan of Wuhan City in 2018 (120 billion yuan).

6.2. Analysis of current financing mode
There are two ways of investment and financing for infrastructure construction projects: government investment and Public-Private Partnership (PPP) investment. Taking the Binjiang Business District as an example, the infrastructure mainly includes urban roads, underground pipelines, underground roads, municipal utility tunnel, and landscape greening. They are built by government investment (urban construction funds) and bank loans. Underground loops and underground commercial complexes are built-in by the PPP model. The two options above both have their limitations.

6.2.1. Government investment model. It has the advantages of clear investment objectives and strong government control. It is common in areas such as government budget expenditures, special monopoly industries, classified projects, and emergency projects. However, pure government investment projects are becoming fewer and fewer. There are shortcomings such as ineffective project management, waste of resources, and low investment efficiency.

6.2.2. PPP financing model. It has been used frequently in the fields of municipal engineering, transportation, comprehensive urban development, affordable housing construction, ecology and environmental protection, and medical care. It has achieved the goal of making full use of social capital and reducing the government's financial burden. However, the PPP model is subjected to restrictions on the scope of application, policies, regulations and law, value for money, and financial sustainability. What’s more, the management program of the PPP model is complex and requires high requirements for the project management team.
With the PPP craze, problems such as “unreasonable risk distribution, hidden debts, government disguised, imperfect performance appraisal, and excessive social capital financing leverage” have emerged.

6.2.3. A new model. It is necessary to explore a new model. "Land finance" will not be used for Yangtze River Demonstration District. It neither harms the interests of the people or monopolize the construction dividend. A tolerable form of financing should be found to ensure the source of construction funds and promote the construction of the Yangtze River Demonstration District. This is why both the Xiongan New Area and the Yangtze River Demonstration District need to consider the innovation of the construction model.

7. Conclusions and recommendations
It is fortunate for Wuhan to propose the concept of The Yangtze River Demonstration District. If it can be received state-level approval, Wuhan’s voice can be heard, so it deserves expectations. Based on the experience of the construction of the new district in the past, the following suggestions are made for the construction of the Yangtze River Demonstration District. The first recommendation is to enhance the preliminary demonstration of the project, launch investment planning, investment consulting, financing, and operation to achieve the top-level design and decision-making. The second is to entrust the whole process consulting organization to consult. The goal is to save investment costs, to accelerate the progress of the construction period, to provide service quality and effectively to avoid risks are achieved.

7.1. An independent organization should be established
The Yangtze River Demonstration District Management Committee should refer to the model of the Donghu High-tech Development Zone Management Committee. It should have independent approval authority. In this way, the progress of project approval can be guaranteed and some communication contradictions will be avoided due to more administrative divisions, which will help speed up the construction.

7.2. An independent organization should be established
Customer-friendly development models will have better execution planning results. The Shanghai World Expo Park is a typical example of this form. Its project management model is motivated by a platform company. The investor only needs to ask for the demand, and then the platform company is responsible for planning and construction, and finally the project is handed over to the user. The opposite case is Wuhan Optics Valley World City. Resulting from the early involvement of developers in urban planning and design, the interests are divided. As a result, construction results and planning are very different. Final construction and development results are not satisfactory.

7.3. Strengthening project planning and consultation
Under the traditional construction mode, the consultation, design, construction, supervision and other links are disconnected and professionally separated. It is short of the overall control of the whole industry chain. The preliminary planning of the project will effectively guide future work, ensure scientific decision-making and improve investment efficiency. “Overall service process” will be conducive to saving investment costs, management costs and improving the efficiency of new district development. It includes scheme, consulting, planning, design, construction, operation, financing and investment promotion.

References
[1] Wu, Z. Q., Li, D.H. (2010) Principles of urban planning (4th edition). China Architecture & Building Press, Beijing. pp. 65-78.
[2] Ye, Q., 2017. The new thinking of the Yangtze River Demonstration District. Decision-Making, Anhui. pp. 91.

[3] Yan, C., 2017. To build a world-class city highlight block. Yangtze Tribune, Wuhan. pp. 21-26.

[4] Hong B, 2017. Where does hydrangea fall, it is in my heart and in yours. https://mp.weixin.qq.com/s/8z2C3q5obOe4-jbPcsxQaA