

'FLOWING': The Regeneration of Millennium ancient city by Beijing-Hangzhou Grand Canal

——Practice in Suqian, Jiangsu, China

1 The Millennium ancient city - Suqian Overview

1.1 City Impression

Suqian, A millennium ancient city in China, Great Xichu Conqueror Xiangyu's hometown, Birthplace of Chuhan culture, Layers of ancient cities buried. Yellow River (the National Mother River 5,464km) and Beijing-Hangzhou Grand Canal (the National Wisdom River 1794km, declaring the World Cultural Heritage) run through it. With Luoma, Hongze Lake, it has "Two Rivers Two Lakes" unique spatial characteristics. Nowadays Suqian is meeting the challenge of leapfrog development and 'Livable Cities' transformation. The city area is 8555 square kilometers and the resident population is 4,725,100. In 2009 its GDP was RMB 82.685 billion, per capita GDP was RMB 1.75 million. It's industrial structure is 19.3:46.3:34.4, level of urbanization is 37.7%

1.2 Superiority Evaluation

- (1) industrial structure optimized continuously, overall strength increased significantly.
- (2) people's lives condition Improved. Urban residents per capita disposable income was 12000, increased 11.6% per year; Farmer's per capita net income was 6,000, increased 8.9% per year.
- (3) City's carrying capacity has improved significantly. infrastructure had remarkable results; the process of industrialization and urbanization process accelerated.
- (4) Good ecological environment. Good days for 331 days, good rate is 90.4%.
- (5) Profound historical accumulation. the ancient city, the birthplace of Chu and Han culture, the history of mankind living fossil

1.3 Development Opportunities

- (1) Expansion of the Yangtze River Delta. 'Yangtze River Delta Regional Planning' has been released. The core of the Yangtze River Delta region is facing the development of industrialization and urbanization, the access threshold is increasing.
- (2) Jiangsu Coastal Development. Jiangsu coastal development is not only the historical opportunities of the coastal urban development, but also the historical opportunity of Northern cities' revitalization in Jiangsu. Suqian is located in Jiangsu coastal areas and is in the Midwest radiation to the gate area. It will play an important role in promoting transportation of energy and personnel from the central to the coast, transportation of Capital, technology from the coast to the central.
- (3) Policies of Northern Jiangsu's Revitalization. Relatively relaxed environment and flexible policies gave a broader development platform and space for the revitalization of Suqian industry and the industrial structure optimization.

1.4 Development Direction

(1) City Orientation. New Industrial Base in north Yangtze River Delta, Center City in East Longhai Region, Eco Lakeside livable cities.

(2) Domain space structure. Pole: Suqian downtown city and Shuyang. Two: Sihong, Siyang sub-center spaces. Three zones: Northeast with manufacturing, trade, logistics is an important channel radiating mainly to central and western coastal areas of. Southeast with manufacturing, food processing and modern service industries is concentrated area. South with the eco-tourism and food processing.

(3) Level of Urbanization. In 2009 Suqian level of urbanization was 37.7% (Provincial Bureau of Statistics), predicted in 2030 to 68%.

(4) Downtown Space Structure: "One Main Two Vice, Lakeside Wine Home." The main city core has the city's comprehensive services, improves the central functions; Lakeside Park City has the tourism, recreation, ecological, educational, scientific, research and development functions. Yanghe, deputy city relying on transportation advantage and the existing industrial base, is constructing the industrial city.

1.5 Regeneration Dilemma

(1) Increasing decline of the ecological environment of two rivers, weakening of ancient city vitality.

(2) Highlighting the contradiction between development needs and resource supply.

(3) Difficulties in heritage conservation, historic authenticity and integrity's destruction.

(4) Infrastructure overloaded, facilities are aging, city's waterlogging serious.

(5) Located in Tan-Lu fault China, an earthquake of high intensity areas, earthquake and other disaster situation is grim.

1.6 Study Area

Early November 2010, to improve the living environment of Suqian ancient city, the Government decided to prepare "Regulatory Plan of Suqian ancient city". Suqian is positioned as the traditional living area which has the most historic cultural and geographical characteristics, an integrated functional Area of commercial, cultural, tourism services. (Figure 1)

(1) Study Area. Suqian ancient city in central, northeast to the Beijing-Hangzhou Grand Canal, south to the South Loop, west to the ancient Yellow River and development road, with a total area of 15.69 square kilometers.

(2) Population Distribution. A total of 16 communities within a total of about 37,000 families, population is 16 million ,of which household population is 117,976 people, accounting for 73.7%.

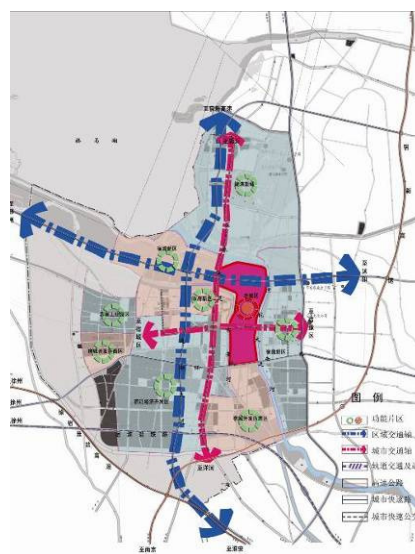


Fig.1 Location and Surrounding relationship

2 City Regeneration Theme - " FLOWING "

2.1 "FLOWING" Concept

'A rolling stone gathers no moss', moving things are most viable and prosperous. 'FLOWING' including Flowing of ecological resources; Flowing of historical and cultural resources; Flowing of public service resources; Flowing of urban shelters; etc. "FLOWING" integrates types of urban resources, uses land intensively, protects ecological environment and enhances evacuation capacity, ultimately to achieve a dynamic equilibrium of urban development.

(1) Global " FLOWING "

Currently, global climate warming showed a series of extreme weather threat to the survival of the world. In early 2011, Japan's earthquake, tsunami in tornado Missouri ,USA, drought in Yangtze River region, China, etc. are reminding us: Mankind can not be blind development, we should be gentle with the earth. The global urbanization brings crisis of global resources, the global resources should flow up and be intensively used.

(2) China's " FLOWING "

In 2010 China's global competitiveness ranking rose to 27. With China's economic rise is the rapid growth of resource requirements. In 2011, national new construction land is 446,700 hectares, an increase of about 4.7%, 'red line' of holding 18 million mu of cultivated land is facing enormous pressure. " FLOWING " is the most sustainable development mode, in line with the needs of information city development age. It can promote China's city low-carbon, eco-development to ensure sustainable development and rational utilization of resources.

2.2 " FLOWING " Principle

(1) Improve balance of Ancient city land benefit and Protection

Because of land scarcity and real estate developers' pursuit of high profits, the waterfront land which has higher value will face high-intensity development. We can't ignore the influence of high strength development on ancient city scene, we should analysis the city as a whole spatial pattern, to ensure smooth important landscape gallery between nodes. We should give full consideration to the protection and continuation of ancient city scene and then the co-ordination between development regional with ancient city. Search for the best fit point to realize win-win of the resource intensive use and ancient city regeneration.

(2) Promote balance of Ancient city development and Maintenance of people's benefits.

Ancient city regeneration process will inevitably involve a range of issues related to aboriginal rights, such as relocation compensation, resettlement and other issues. May 2011 the State Council issued a document required to ensure no violent demolition, to resolutely stop the demolitions of illegal behavior. Ancient aboriginal demands should be strengthened in-depth research to fully listen to indigenous voices. We should increase public participation, transparency of information disclosure, take full account of people's comfort, happiness and a sense of integration of social groups. We should ensure the harmony ancient city regeneration through developments of relevant policies and regulations, such as local integration, protection of housing construction, job opportunities and other measures.

(3) Increase balance of Population size and Carrying capacity

Ancient city regeneration will lead to a rapid expansion of city population, population's expansion will bring a series of load capacity pressure. Carrying capacity should be based on

comprehensive analysis of the ancient city, including traffic carrying capacity, infrastructure carrying capacity, ecological carrying capacity, etc., We should prepare unified plans which are interrelated and complemented, to form a complete planning system. We should increase infrastructure investment and environmental protection investment, enhance the overall carrying capacity of the ancient city, to ensure its healthy and sustainable operation.

(4) Adhere balance of Government-led and Market regulation

If city regeneration rely solely on market regulation and sell land disorderly, it will lead to urban space discontinuity, urban dysfunction and disorganized image of the city. In order to avoid land speculation, and maintain organic growth of ancient city, we should strengthen the government's land-use macro-control, strengthen control of land size and use, by updating, acquisition, land preparedness and other means. Ancient city should be led by the Government, businesses, community intervention, formate large-scale integration of Area, tie the benefit chain to a comprehensive development, to achieve efficient, intensive, high-level construction.

2.3 " FLOWING " Efficiency

(1) Multiplying Economic Value.

The ancient city's economic value can be achieved doubled through resource flowing. Ancient City's resources are scarce, which often show signs of possession of monopoly problems and high prices and so on. Through flowing, we can make the best use of city resources and get maximum economic efficiency. With population growth and socio-economic development, the benefits of additional investment in the city continued, but at the same time we should ensure the intensive use of city resources.

(2) Enhancing Social Value.

We can realize public reasonable allocation of resources and bring old social value's ascension through resources flowing. Make ancient city's inherent social structure transform from acquaintances society to strangers society, from unit society to social change, from soil heavy township type society to no root social transformation. Overall, from simple to complex social. The ascension of the ancient city's social value should be in the service of long term goals of urbanization, reflecting ' People-oriented' concept development

(3) Highlighting Ecological Value.

Protection of ecological value can be achieved through resource flowing. As the city's increasingly serious environmental pollution, ancient city regeneration should be concerned for the people's survival ecological environment affected by economic recovery by 'external theory ', pay attention to the ancient city environment protection. Flowing stress ecological constraint, require imposed green compensation of development activities that affect the city regeneration, highlight ecological value of city resources.

3 Ancient City Regeneration Strategy

3.1 River Flowing- Enhance Vitality of two Riversides

Considering the city flood control, drainage, water features and landscape requires , we combed River Network, improved the urban water environment through strengthening river control, water management and shore environment. Beijing- Hangzhou Grand Canal was planned for the Level 2 channel, its width was controlled from 140 to 260 meters. Tributary of the river required dredging to broaden and improve the revetment construction. We

strengthened control of wastewater treatment and greened both sides, to play comprehensive functions of drainage, ecology, landscape and recreation, ensured catchment area of whole and surface runoff.

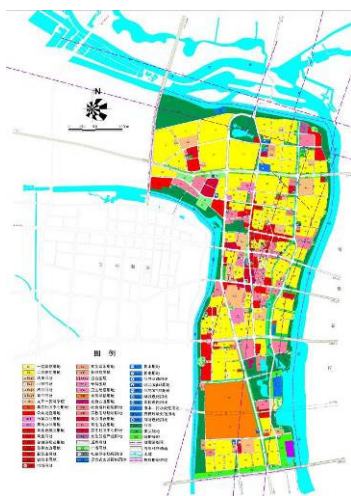


Fig.2 Land use Plan

We build Suqian city a water pattern of "Green belt, Tracy chain beads around" (the ancient Yellow River, Beijing-Hangzhou Grand Canal, embracing the ancient city, ecological node goes through the Maling River from north to south). Beijing-Hangzhou Grand Canal is currently being declared world cultural heritage. Considering the development of Sea Canal land and flood control requirements, we protected and enhanced features along the canal, encouraged the creation of new habitat to maintain its biodiversity. We combined land use on both sides of the ancient Yellow River and improved the construction of revetment and greening to enhance coastal recreation, landscape, ecological function and to improve transport links across the river. Maling Green River is an ecological chain, also an important tourist routes. We

broadened and improved the revetment to play its drainage, ecology, landscape, recreation function.

3.2 Land Flowing – Promote Exchange of Land Features

Land Flowing means the reasonable replacement of land function. Factory buildings, warehouses, station, wharf, etc. have lost their original functions. We undertook a comprehensive protection and creative re-use, gave them new urban functions, such as retail commercial, residential, parks, squares, galleries, etc. We not only re-excavated the land value, but also developed them as city cultural resources. We achieved regeneration of inefficient space use, which has a positive meaning for renewable and cultural diversity of ancient city. We made economic calculation of dilapidated Area transformation and achieved overall balance of ancient city land. (Figure 2)



Fig.3 Comprehensive Transportation Plan

3.3 Traffic Flowing - Determine Strength of Rational Development

Through traffic flowing, we can achieve the best balance of Land capacity growth and traffic organization. We integrated ancient city's layout and design comprehensive transport design, set bus lanes in fast channel which connect the ancient city with bus terminal and other areas. We focused on land use intensity, mixed function, reasonable design of bus corridors to provide the public multi-level selections under conditions of relatively high-intensity

developments. We Integrated bus transfer points to ensure public transport accessibility, encryption branch network in core area to ensure the whole city traffic flow touch. (Figure 3)

3.4 Affordable Flowing - Implement Affordable Housing Projects

Ancient city regeneration should concern about the interests of vulnerable groups to achieve Affordable Flowing and to make disadvantaged groups enjoy city support resources. Through in-depth research and analysis on specific needs of low-income groups, we gave priority to land for affordable housing, controlled its quantitative and orientation, realized livable on the basis of home. We total planned 5 economy applicable room or reform land, Covered an area of 67.06 hectares, which can contain 63000 people; 3 low-cost, public rental housing land, covered an area of 6.62 hectares which can contain 15000 people. We stressed creating and maintaining the mixed self-contained communities to achieve "inclusive type growth", to make organic integration of transform and development. (Figure 4)

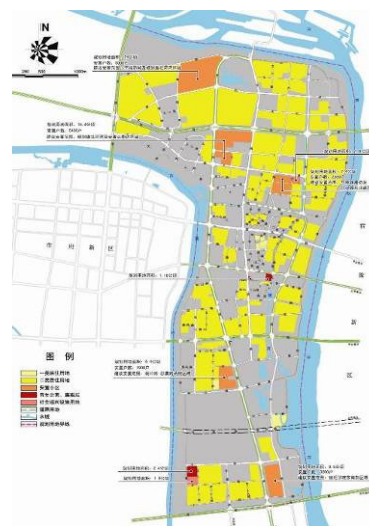


Fig.4 Affordable housing land Plan

3.5 Services Flowing - Enhance Sharing of Public Resources

With the development of Times, people put forward higher request on ancient city public resources' scale, quality and service. Ancient city regeneration should based on intensive use of land for public facilities, perfect city public service system, improve public service facilities ' size and quality. Education, health care and other public resources should upgrade its own development and positively flow outside to ensure the fairness of public service and public

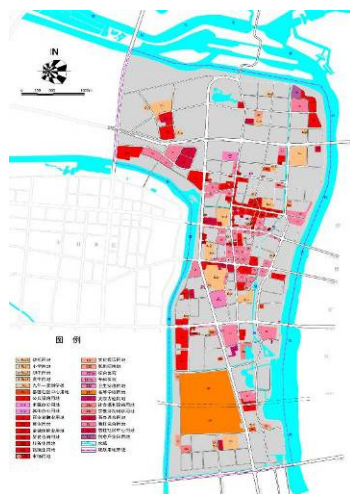


Fig.5 Public Facilities Plan

welfare. Suqian ancient city built Public facilities layout system by one city-level service centers, five community-level service centers and six grass-roots community-level service centers. Through service flowing, we increased people's sense of identity to the community. (Figure 5)

3.6 Culture Flowing - Fully Excavate Cultural Resources

Ancient city regeneration should focus on the continuation of city spiritual content fully display the city's history of heavy precipitation through cultural flowing. Suqian has a long history and cultural heritage as Concubine Xiang Yu's hometown, the birthplace of Chu and Han culture. We protected the tradition spatial pattern of ancient city, combined feature blocks protection and dangerous old area reconstruction. We also perfected traditional block function to

glow the human vitality and reveal ancient city characteristics.

Opened in 1958, Maling Road is dilapidated Area Suqian busiest night market street, with a total area of 956 acres, about 3386 residents, neighborhood space, texture-rich, distinctive features, but faced with the threat of destruction of cultural protection units, remove of traditional houses and historical construction area. With "Cultural flowing, organic growing,"

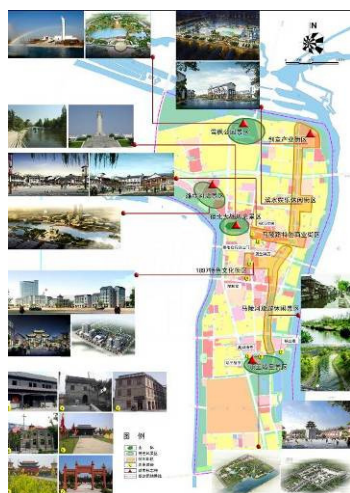


Fig.6 Cultural Landscape Plan

main line, We Mined phoenix totem in blocks, protected the historic built environment and spatial characteristics, carried historical information to modern system of public activities to achieve positive interaction. (Figures 6, 7, 8)

3.7 Landscape Flowing - Ensure Low Carbon Development

We used city ecological landscape resources intensively, including green streets, waterfront green belt, green parks to promote ancient landscapes flowing. We combined

'See seam in green' and 'planning add green', enhanced city parks' eco-efficiency through green roofs, sky gardens, eco-wall (vertical green), dust noise, and increased waste recycling and reuse, reduced building energy consumption and other measures, to improve the city environment quality.

We used idle land, ponds, sewage river crossing, the dump and other waste land, to build green street corners, and ensured that residents within 500 meters of travel can see the green. We not only met the residents' leisure and recreation needs, but also maximized the improvement of city environment. (Figure 9)

3.8 Refuge Flowing--build shelter refuge system

Wenchuan China "4.12" and Japan "3.11" earthquake gave us warning: we must strictly protect the city lifeline to build urban disaster prevention and evacuation systems by flowing shelter resources. Suqian located in Tan-Lu fault zone China, its earthquake situation is grim, task of earthquake disaster reduction is heavy. We planned refuge system of urban disaster prevention and urban green space system, transportation system together, achieved the city's multi-dimensional use of space by multi-dimensional expansion of urban public facilities services. As refugee flow should be convenient for residents evacuating, an area of 1 hectare city parks are used as disaster prevention parks. Squares, parks, green spaces, school playgrounds and sports venues are places used as emergency shelters. We made a good combination with disaster prevention facilities and sports facilities, parks facilities. We enhanced the use of complex ancient city's three-dimensional space, made underground space from consists of a single refuge function gradually to traffic, business, entertainment and municipal facilities compound multifunction, improved the ancient city's earthquake disaster prevention ability (Figure 10)



Fig.7 MaLingLu dangerous old district land plan



Fig.8 MaLingLu dangerous old district Bird's View

3.9 Information Flowing - Innovate Planning and Management System



Fig.9 Landscape Plan

In 2010 Suqian implemented full coverage of regulatory control. Through public participation, digital city construction and other measures, we achieved real-time flowing of planning information, innovated in urban planning and management system. We put planning results on "digital Suqian" network platform, combined regulatory control plans with urban design guidelines, making urban land management information from the two-dimensional plane into three-dimensional space, achieved real-time control of urban land management, both for land auction management, and convenient to public inquiries related to online information. We controlled the regulatory planning in accordance with the unified strict management, which improved the city's urban planning management efficiency.

4 Conclusion

Our practice in Suqian ancient city proved that China should let the ancient city regeneration resources flow up, that is 'Flowing Regeneration' Form. Ancient city regeneration is a complex system, in addition to planning level, is also related to people's conception and the conversion, the interests of all parties, the adjustment and government transition level, it may not come easily. In ancient city regeneration planning, we put forward strategies such as River Flowing, Land Flowing, Traffic Flowing, Affordable Flowing, Service Flowing, Cultural flowing, Landscape Flowing, Refuge Flowing, Information Flowing, etc. to use ancient city resources intensively, make ancient city regain vitality and vigor, and have a charm and sustainable ancient city successfully. We hope our practice can give inspiration to similar projects in the world.



Fig.10 Earthquake disaster prevention Plan

All Figs are from 'regulatory plan of Suqian ancient city'

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