

Spatial Morphological Changes in Towns in the Hangjiahu Region of China under Policy Implications

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Abstract: With the acceleration of urbanization, towns, as vital entities for coordinating urban-rural development and facilitating local urbanization, have garnered significant attention from Chinese scholars in recent years. Among these towns, Hangjiahu towns, as one of the fastest-growing and most promising regions for town development in China, is intricately intertwined with the optimization and adjustment of their spatial forms, guided by policies that continually evolve and adapt. This study begins by elucidating the evolution of policies of towns in Zhejiang province, summarizing the key focal points of higher-level planning in different phases. Subsequently, it delves into an in-depth analysis of the morphological transformations and organizational stages of Hangjiahu's towns under the influence of policy directives. Finally, it synthesizes the spatial evolution characteristics from the past and provides insights into future trends in spatial organization, to offer a template for the development of towns not only in China but also in other regions worldwide.

Keywords: Policy Guidance; Hangjiahu Towns; Spatial Morphology

1. Introduction

According to the "China Urban and Rural Construction Statistical Yearbook," as of the end of 2020, China had a total of 687 cities, 1,495 counties, 27,700 towns, and 2.363 million villages. Towns hold an overwhelmingly dominant position in terms of the urban population. China has undergone one of the world's largest urbanization processes, according to data from the National Bureau of Statistics, China's urbanization rate increased

from 17.9% in 1987 to 63.89% in 2020, with an annual increase of over one percentage point on average. The urban population grew from 172.45 million to 901 million, averaging an annual increase of 17.37 million, while the rural population decreased from 790.14 million to 509.79 million, resulting in a net decrease of 280.35 million. Alongside the continued rapid development of the economy and society, as well as the swift progress of urbanization, various aspects of China's urban and rural society, economy, and spatial structure have entered a period of rapid restructuring. Towns located in transitional zones between urban and rural areas have experienced some of the most significant changes within the urban and rural resident system. Against the backdrop of China's rapid urbanization in the 21st century, towns, as a crucial component of China's urbanization, hold significant importance in promoting coordinated and sustainable development between urban and rural areas.

However, towns currently represent a weak link in China's coordinated urban-rural development efforts. During the early stages of the urban-rural binary structure, the strategic significance of towns was underestimated, resulting in their infrastructure development lagging far behind that of urban and rural areas. Serving as vital connectors in the urban-rural continuum, towns are where urban and rural resources and elements converge, giving rise to the most pronounced urban-rural binary contradictions. Throughout the rapid urbanization process since the mid to late 1990s, towns in China have essentially existed in a "hollow" state, lacking attention and support from both urban and rural ends. They have become the "sandwiched layer" within the urban-rural settlement system, characterized by a significant lack of

competitive advantages. In terms of practical outcomes, the development of towns in China has notably lagged. This is evident in their limited population-carrying capacity, relatively weak role in the urbanization process, insufficient industrial foundations, delayed infrastructure and social service facility development, and a pressing need for improvements in living conditions.

Guided by the Rural Revitalization Strategy, China's towns and rural areas have encountered unprecedented opportunities. In terms of spatial utilization, this new urbanization path is "improvement-oriented" rather than "city-building-oriented," focusing on "connotative urbanization" rather than "extension-oriented urbanization." By strengthening spatial governance in towns, promoting coordinated urban-rural spatial development, preventing the disorderly expansion of cities and towns, and protecting the ecological environment and basic farmland, this path follows a course of structural optimization, green and low-carbon development, as well as intensive and efficient land use. These factors impose higher demands and challenges on the construction of towns in China.

The towns around Hangjiahu are typical water towns in China with a history spanning over a millennium. From their inception, these towns established an inseparable connection between human habitation and the environment, evolving into traditional water towns unique to their geographical surroundings. Through the ingenious efforts of the local labor force, the initially unfavorable hydraulic environment was transformed into a productive resource, making the Hangjiahu region a pivotal hub for economic development in China since the Ming and Qing dynasties. Over centuries, Hangjiahu has remained one of the most prosperous and promising regions among China's towns, serving as a trailblazer for policy innovation and a model for reform in towns across the country.

The enduring development vitality of Hangjiahu's towns is closely tied to government resource allocation and policy guidance. Extracting and summarizing the characteristics and experiences derived from their long-term practices can provide theoretical support and empirical insights for

the sustainable development of towns not only in China but also globally.

2. Typicality and Demonstrative Significance of Hangjiahu Towns

2.1 Exemplary Models of Towns in Chinese Watery Regions

The Hangjiahu Plain is situated in the northern part of Zhejiang province, China, and stands as the largest alluvial plain within the province. It lies to the south of Lake Tai, to the north of the Qiantang River and Hangzhou Bay, to the east of Tianmu Mountain, and the west of the East China Sea. Positioned in the southern region of the Taihu Lake Basin, the Hangjiahu Plain is the largest among the six major plains within the Taihu Lake Basin, covering an approximate area of 7,607km²(including the hilly terrain along the Qiantang River) [1]. It is also a part of the Yangtze River Delta in China. The Hangjiahu Plain features a low-lying topography, with an average elevation of approximately 3m above sea level. It takes on a shallow saucer-like depression, with the eastern and southern areas rising slightly and gradually sloping towards the west and north. This geographical arrangement results in a distinctive shallow basin-like terrain. The plain is characterized by a dense network of water bodies, with rivers meandering across its expanse. Notably, it boasts an average river density of 12.7km/km², making it one of the regions in China with the highest river network density [2].

Towns that have emerged in the Hangjiahu Plain area in China are subject to both constraints and dependencies on water systems in various aspects such as culture, industry, and spatial development. The roles and limitations of these water systems in towns in the Hangjiahu Plain are primarily reflected in the following aspects:

Riverside Town Development: The establishment of towns in the Hangjiahu Plain has evolved alongside the formation of the regional aquatic environment. Towns are often situated in the plains of water-rich regions, intermingled with low hills, streams, and marshes. To address the challenges posed by fragmented water networks and soil salinity in these coastal plains, the Hangjiahu Plain has undergone extensive construction of dikes, embankments, and sluices to prevent the

intrusion of saline water. This has essentially led to the creation of a town layout Water Storage and Regulation: Given the low-lying terrain prone to flooding, the threat of water-related disasters, and saltwater intrusion, residents have been actively engaged in the comprehensive restoration and improvement of water conservancy projects in the Hangjiahu Plain since the Song Dynasty. These initiatives encompass the construction of sea-defense dikes, the installation of sluices and weirs, and the enhancement of the water storage capacity of lakes and marshes. Additionally, efforts have been directed toward the maintenance and improvement of polders, water channels, embankments, and small reservoirs. These water conservancy facilities not only address drought conditions but also effectively prevent water-related disasters, ensuring the smooth development of human settlements.

Maritime Commerce and Transportation: The natural environmental characteristics of the Hangjiahu Plain, characterized by its low-lying terrain and dense network of rivers and lakes, historically hindered human activities. However, the construction of the Grand Canal from Zhenjiang to Jiaxing, initiated during the Sui Dynasty and extending to Hangzhou during the Song Dynasty, brought the convenience of water transportation to the Hangjiahu Plain. This development transformed Hangjiahu into an important transportation hub in southern China. The economic growth of towns in this area experienced remarkable progress, establishing it as a representative region of prosperity.

Agricultural Irrigation: The favorable natural conditions in the Hangjiahu Plain are not solely attributed to nature's endowment; the local labor force played a crucial role in the long-term management and transformation of marshy plains. The people of Hangjiahu have integrated water management with land cultivation, implementing the Pu Tang Polder System. This system significantly enhances the efficiency of agricultural irrigation. Simultaneously, the construction of dikes and sluices facilitated the reclamation of saline wetlands, transforming them into fertile farmland. This concerted effort has established the Hangjiahu Plain's towns as a "land of fish and rice."

In response to the flood risks posed by shallow shoals and dense water networks, the

characterized by an intact water system, robust embankments, and extensive pond networks. hardworking population in the Hangjiahu Plain region has proactively undertaken topographical adjustments tailored to the unique aquatic environment. This has resulted in a fragmented topography for towns in the Hangjiahu Plain, particularly in the lower-lying areas. In these regions, numerous water systems and bodies have emerged alongside the reclamation of shallow water areas for paddy fields. This can be understood as an early stage of spatial transformation for towns, driven by the purpose of agricultural development, embodying the typical characteristics of traditional water towns in China (Figure 1).



Figure 1. Aerial View of Hudong Marshes in Linghu Town, Zhejiang Province

2.2 Pioneers of Reform in Chinese Town Development

Hangjiahu, located within Zhejiang Province, China, is known for its pioneering role in the reform of towns, characterized by strong economic capabilities and an innovative spirit. This is evident through several key initiatives: In 2005, Zhejiang led the way in implementing a town system reform with a focus on "Authority Enlargement at the Township Level." Subsequently, in 2010, with the release of the notice "Regarding the Pilot Work of Administrative Management System Reform in Economically Developed Towns", the action of expansion of town empowerment began to be carried out nationwide. In 2007, the Zhejiang Provincial Government introduced the concept of nurturing central towns, which was later adopted nationwide as part of the small city development pilot program initiated in 2010 and continues to this day. Additionally, Zhejiang Province took the lead in proposing

the construction of "characteristic towns" in 2015, a concept that gained widespread attention and promotion across the country. The development of towns in the Hangjiahu region has positioned it as a leader within Zhejiang Province. These towns have experienced rapid growth driven by robust industrialization and commercialization in rural areas. On one hand, the economic density of these town units in Hangjiahu is high, indicating a trend of concentrated development. Notably, the average gross domestic product per unit of land area is significantly higher in core development areas centered around the Hangzhou Bay area. On the other hand, the towns in the Hangjiahu region are situated on a plain with a dense network of waterways, offering them natural resources for development without the limitations of topographical constraints. Consequently, compared to the overall level in Zhejiang Province, the towns in the Hangjiahu region exhibit characteristics such as a larger number of towns, high geographical density, extensive land area, rapid development, and high population density. They have extended and continuously developed around the Hangzhou metropolitan area, forming a large-scale agglomeration of towns. As an advanced stage of regional urbanization, the study of the development characteristics and trends of towns in the Hangjiahu region holds significant value as a typical and exemplary case.

3. From Differentiation to Categorization: A Review of Policy Development in Zhejiang Province's Towns

The spatial development of towns in the Hangjiahu region has undergone a lengthy process of evolution. It has evolved from ancient times when human settlements were entirely dependent on the network of waterways and the flat topography of the lake region. During the Shang and Zhou dynasties, there was a standardized system of city planning and urban spatial structure, which imposed a certain scale and form on urban spaces. In the Warring States periods, the influence of naturalistic concepts like the Five Elements on city planning that followed natural forms became prominent.

Moving into more recent history, urban land use patterns in the Hangjiahu region became

more diverse, and spatial growth became more fragmented. Finally, after the establishment of the People's Republic of China, there was a transformation in the spatial configuration, shifting from horizontal to vertical urban spatial forms. Examining the historical spatial development of towns in the Hangjiahu region, it becomes evident that changes during certain lengthy phases were gradual and uniform. However, over the past 30 years, with increased government intervention and support, there has been a significant escalation in the scale and diversity of spatial evolution in these towns [3].

The following section will elucidate the transformation in planning orientation and construction methods of towns in the Hangjiahu region over the past 30 years by outlining the relevant policies and initiatives introduced by the Zhejiang Province.

3.1 Adjusting Township Patterns: the Townships Consolidation Campaign

The Hangjiahu towns have experienced a rapid increase in the number of individual family businesses, thanks to the liberation of the private economic system and the release of the agricultural labor force. During this period, town establishment was solely based on population size. The rise of township enterprises led to a rapid expansion in the number of towns, giving rise to many settlements that did not fit the traditional definition of villages or towns. In Zhejiang Province, the number of administrative towns increased from less than 200 in 1978 to 961 in 1995, at an average annual rate of 50 new towns. During this phase, Hangjiahu towns were characterized by their large numbers, small scale, and low quality, and the drawbacks of extensive development became apparent.

For instance, there was significant homogeneity within these towns, and overall construction quality was poor. The "low, small, and scattered" pattern of township industrial development couldn't support the function of industrial agglomeration in the urban-rural economic system. Moreover, these towns lacked the self-development capability and public facility support that comes with a certain population size. According to the 1996 Zhejiang Province Agricultural Census data, the average built-up area of towns was 1.86

km², with an average population of only 4,984 people. 80% of these towns had populations of less than 10,000, and 50% had populations of less than 5,000. Towns with small scale and low quality faced a bottleneck in their later-stage development.

To enhance the development momentum of towns, the central government and the Zhejiang provincial government successively issued substantial policy measures favorable to the comprehensive development of towns. These measures can be broadly categorized into two main areas: the consolidation of townships across the province and the expansion of scale effects in central towns.

On one hand, in 1996, Zhejiang Province proactively initiated a comprehensive adjustment of township regional planning throughout the province, an unprecedented effort in terms of its scale. Almost all local counties, cities, and districts implemented the consolidation of townships. The criteria for town establishment shifted from a single population standard to a comprehensive assessment considering factors such as economic indicators, land area, and population. Consequently, the number of towns witnessed a noticeable decline (Figure 2). The number of administrative towns decreased sharply from 1,006 in 1998 to 758 in 2005, with an annual reduction of approximately 35 towns. Subsequently, the pace of reduction slowed down.

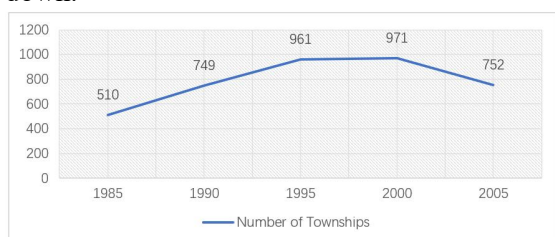


Figure 2. Number of Townships in Zhejiang Province from 1985 to 2005

On the other hand, Zhejiang Province actively promoted the scale effects of central towns to facilitate the agglomeration of resources and enhance overall system performance. Driven by central policies, such as the "Guiding Opinions on Comprehensive Reform Pilot Projects in Towns" issued in 1995, Zhejiang Province became a focal point for implementing comprehensive reform pilot projects in towns nationwide. Among the initial group of pilot towns, six were from Zhejiang Province, including Zhili Town in the

Hangjiahu region. Building upon the national pilot projects, Zhejiang Province further designated an additional 100 towns for comprehensive reform pilots. In 2000, an additional 136 provincial-level central towns were identified, with 17 towns from the Hangjiahu region included, as key targets for future development and cultivation. Through policy support, significant changes occurred in the scale and structure of the Hangjiahu town system. The dominant position of certain central towns continued to strengthen, while others experienced sluggish growth, revealing a trend of differentiation.

3.2 Expanding Scale Effects: Authority Enlargement at Township Level Campaign

After the extensive administrative adjustments of the 1990s, the urban spatial scale of the Hangjiahu towns gradually stabilized in the 2000s. During this phase, Zhejiang Province's policies for towns focused on further expanding the scale effects of towns. There was particular emphasis on significantly broadening the breadth and systematization of policies provided to central towns. In the past government management system, the central government has devolved more powers to local governments, creating a framework where local governments bore more significant responsibilities with fewer financial resources [4]. In 2007, the financial revenue generated by national towns was 650.51 billion yuan, with 54.1% being remitted upwards, while their expenditures reached 414.3 billion yuan. Despite 59% of the population residing in rural areas, which depended on towns for public services, these towns only received 8.3% of public resources [5]. Furthermore, the allocation of construction land indicators and other resources by city and county governments to townships was minimal due to resource exploitation. The phenomenon of having more responsibility than resources became a significant constraint on the development of Hangjiahu towns after the town mergers.

"Authority Enlargement at Township Level" was an institutional innovation for adjusting the governance structure of towns in Zhejiang Province and was a major focus of the development of Hangjiahu towns during this period. "Authority Enlargement at Township

Level" encompassed various policies aimed at towns with distinctive characteristics, economic development, and strong radiation capabilities. These policies included increasing the proportion of retained fees and fiscal revenue sharing, expanding social management authority, establishing financing platforms, enhancing industry support, increasing investment, and reforming the household registration management system. The goal was to break through existing development bottlenecks and institutional constraints. "Authority Enlargement at the Township Level" created a highly competitive policy environment and institutional advantages, boosting the vitality and growth potential of central towns. It has since established a relatively virtuous cycle and widespread social consensus.

In 2007, Zhejiang Province released the "Opinions on Accelerating the Development of Central Towns" (with 19 towns from the Hangjiahu region included in the first batch). This marked the first introduction of the "Authority Enlargement at Township Level" reform nationwide and outlined the overall framework for promoting the development of central towns in the province. In 2010, the Zhejiang provincial government issued the "Opinions on Further Accelerating the Development and Reform of Central Towns" (with 9 towns from the Hangjiahu region included in the second batch) and the "Implementation Opinions on Supporting the Pilot Town Development," promoting adjustments in the industrial structure of towns, particularly the proportion of the service industry in total GDP. At the end of 2010, the Zhejiang Development and Reform Commission introduced the "Guiding Opinions on Authority Enlargement at Township Level," prompting all 27 counties to enact supportive policies for towns. The intention was to create a set of influential towns through reform pilots and policy provisions. After two rounds of applications and assessments, approximately 38% of Hangjiahu towns were included in the list of Zhejiang Province's "Authority Enlargement at Township Level," indicating significant breakthroughs in the institutional construction of Hangjiahu towns (Figure 3). The empowerment policies, which devolved management, personnel, and financial rights,

increased the executability of central town transformation and construction work. During this phase, Hangjiahu towns substantially increased their investments in urban construction and actively promoted a series of actions to enhance urban spatial quality, leading to a noticeable improvement in the coverage of basic service facilities.



Figure 3. Hangjiahu Towns Included in Two Batches of Authority Enlargement at Township Level

3.3 Enhancing Overall Quality: Spatial Remediation Series of Actions

With the tilt towards empowerment policies in Hangjiahu's central towns, industrial development saw significant improvement, and the dominant position of central towns was comprehensively reinforced. However, due to excessive emphasis on industrial development at the expense of urbanization construction, the quality of urban areas suffered, and construction became disorderly, lacking in population appeal. Simultaneously, there was an exacerbation of the differentiation in the development of Hangjiahu towns, with weaker towns losing development rights. Since 2015, China's urbanization has shifted towards a "slower-paced, higher-quality" trajectory, posing significant challenges to Hangjiahu towns. During this period, Zhejiang Province's policy supply adjustment for towns emphasized "promoting functional rejuvenation with the physical renewal of new spaces and environments," aiming to enhance urban spatial quality. It also supported diversified and personalized development for towns, creating new development opportunities for economically and industrially weaker towns. During this phase, the policy measures for the Hangjiahu region towns included "Characteristic Town," "Comprehensive Environmental Remediation," and "Beautiful Town." These initiatives progressively renewed towns in terms of industry, environment, and functionality.

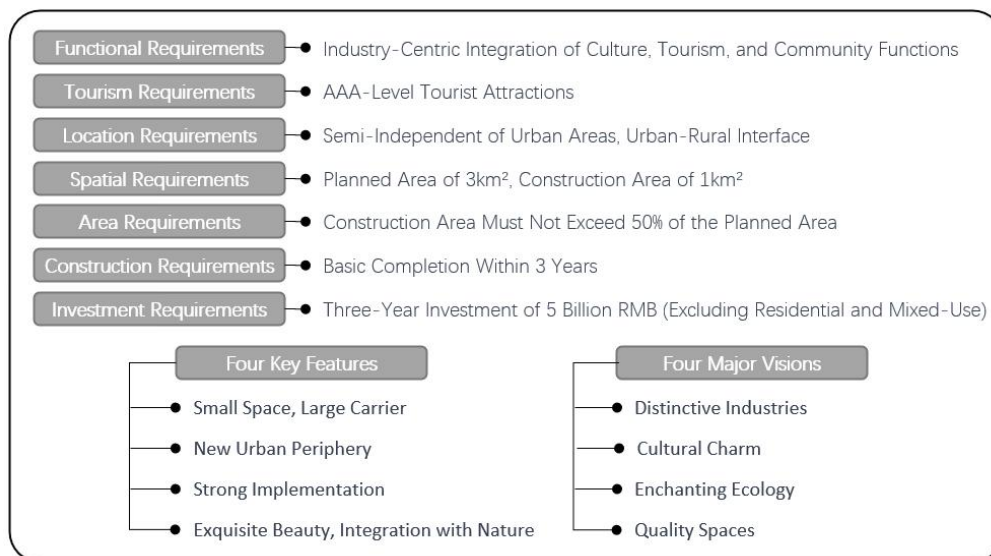


Figure 4. Schematic Representation of the Main Content of Characteristic Town

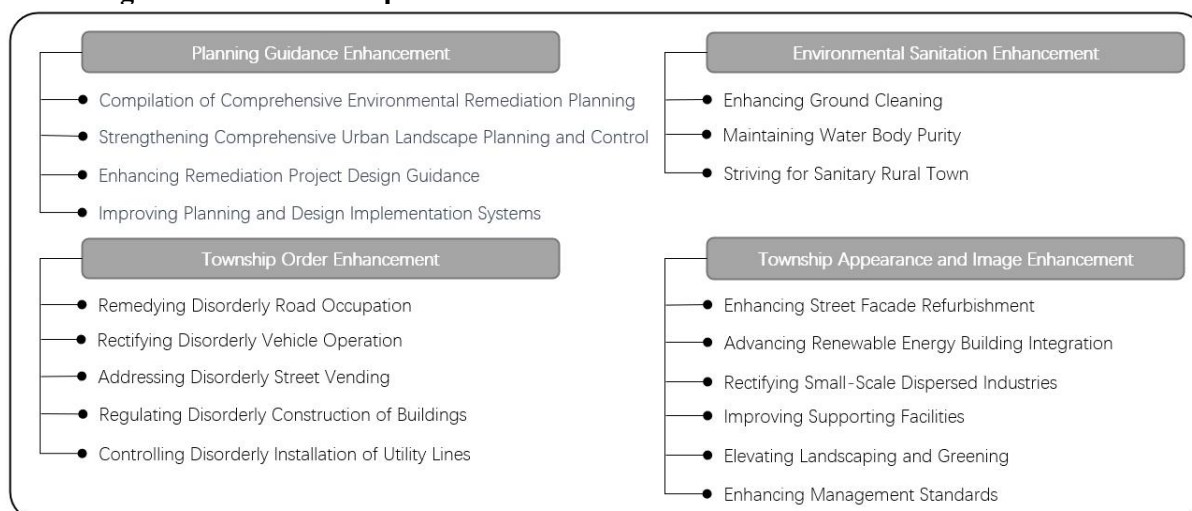


Figure 5. Schematic Representation of the Main Content of Comprehensive Environmental Remediation

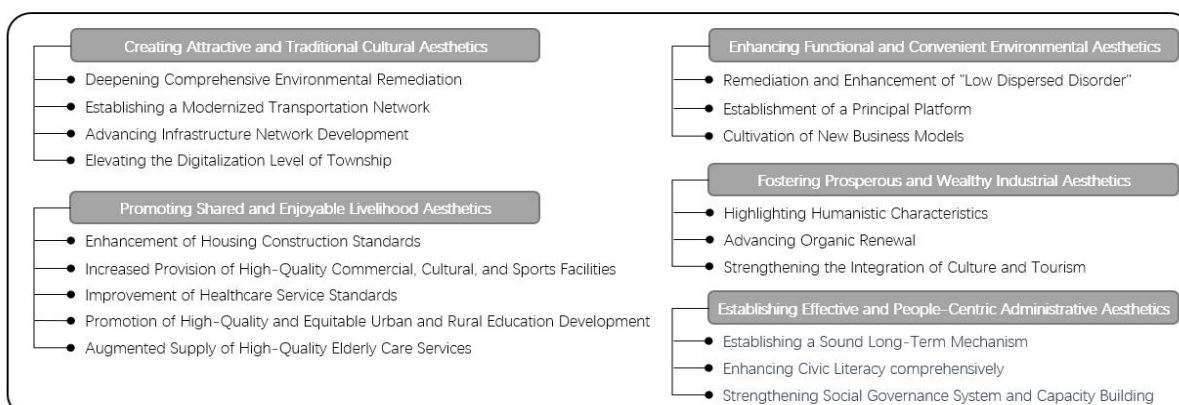


Figure 6: Schematic Representation of the Main Content of Beautiful Town

3.3.1 Industry - characteristic town action
In 2015, Zhejiang Province issued the "Guiding Opinions of the People's Government of Zhejiang Province on Accelerating the Planning and Construction of Characteristic

Town," pioneering the development strategy of creating a "Characteristic Town" in China. The document explicitly outlined a three-year plan to focus on nurturing and planning approximately 100 "Characteristic Towns."

These towns aimed to cultivate seven major industries, including information technology, environmental protection, healthcare, tourism, fashion, finance, and high-end equipment manufacturing. Simultaneously, they would pay heed to classic industries such as silk and rice wine, all while embodying unique cultural connotations [6] (Figure 4).

3.3.2 Environment - comprehensive environmental remediation action

In February 2016, Zhejiang Province's "13th Five-Year Plan" explicitly outlined the initiation of a new round of urban system planning revisions and the optimization of urban spatial layout and functional levels. In September 2016, Zhejiang Province launched the "Comprehensive Environmental Remediation of Town" initiative (comprising 47 towns in the Hangjiahu region) to improve their spatial environment. This initiative focused on environmental cleaning and order restoration, addressing issues related to unreasonable planning, outdated facilities, lack of distinctive features, and weak management, thereby comprehensively enhancing the quality of production, living, and ecological environments in towns (Figure 5).

3.3.3 Function - beautiful town action

In 2019, Zhejiang Province launched the "Beautiful Town" initiative (comprising 60 towns in the Hangjiahu region), building upon the previous efforts. This initiative aimed to absorb the urban spillover population, enhance rural service facilities, and improve township service functions to create a seamless town-village living environment. The "Beautiful Town" approach sought personalized township appearances through diverse design techniques and flexible evaluation criteria, fully respecting and highlighting the unique characteristics of towns. This approach was conducive to capitalizing on strengths, mitigating weaknesses, achieving differentiation, and fostering mutually beneficial competition among towns while overcoming developmental bottlenecks for economically weaker towns (Figure 6).

4. From Disruption to Harmonization: Spatial Transitions and Organizational Phases of Townships under Policy Guidance

During the process of policy changes, the developmental orientation of towns exhibited a phased trend, directly influencing the spatial

organizational forms of these towns. Taking into account factors such as the timing and intensity of policy implementation, as well as feedback data related to population, land, and the economy, the spatial morphological changes in Hangjiahu towns over the past three decades, driven by policy effects, can be divided into three stages:

Spatial Restructuring Phase (1996-2005): During this phase, towns in the Hangjiahu region underwent a reorganization of their town areas as part of The Townships Consolidation Campaign. This restructuring led to significant changes in spatial morphology and boundaries.

Agglomeration and Expansion Phase (2006-2014): In the process of Authority Enlargement at the Township Level Campaign, there was autonomous development that resulted in a rapid expansion of township land areas.

Deceleration and Quality Enhancement Phase (2015-Present): In this current phase, characterized by measures aimed at spatial improvement, there have been efforts to alleviate the extensive land use practices and enhance spatial quality.

The specific pathways of morphological evolution are detailed as follows.

4.1 Dual-zone Weak Linkage: Spatial Restructuring Phase (1996-2005)

While The Townships Consolidation Campaign was an administrative adjustment, it had a profound impact on the spatial morphology of towns in the Hangjiahu region. From a macro perspective, this reorganization established a completely new spatial pattern for Hangjiahu towns. Some towns were downgraded to communities, losing their original morphological boundaries, while the spatial areas of others suddenly expanded, resulting in a significant transformation of their township forms. For instance, after the merger of Zhenze town and Badu town in 2003, Badu was downgraded to a community, while the township area of Zhenze increased from 3.45 km² to 9.43 km², marking a 273% increase in area and a shift from a block-shaped to a strip-shaped form.

At a micro level, while the merger was completed at the administrative level, it did not fully translate into the specific construction of towns. Merged towns, lacking comprehensive

planning, did not genuinely integrate in terms of spatial morphology. Instead, they exhibited a dual-zone, dual-core spatial structure (Figure 7). These two zones lacked connectivity established by ecological or transportation means. For example, the original towns of Quantang and Huanggu had their administrative designations revoked, and a new town called Dushangang was established. However, the actual township activities were still concentrated in the centers of the two old towns, and there was a lack of social and physical connections between them (Figure 8).

4.2 Circular Radiation Expansion: Agglomeration and Expansion Phase (2006-2014)

The most significant change in the spatial morphology of towns in the Hangjiahu region brought about by the Authority Enlargement at Township Level Campaign was the rapid increase in newly constructed township land. Zhejiang Province allocated 2% of the total land quota to the counties where central towns were located. Under the conditions of devolved construction and management rights, central towns in Hangjiahu gained autonomy in town development and actively expanded the construction scale of these central towns. This led to a rapid expansion of the construction area of towns in Hangjiahu during this phase, exhibiting a characteristic outward radiating expansion pattern (Figure 9).

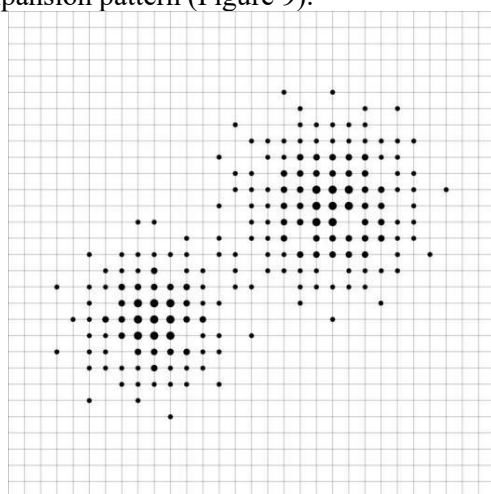


Figure 7. Structure of Dual-zone Weak Linkage

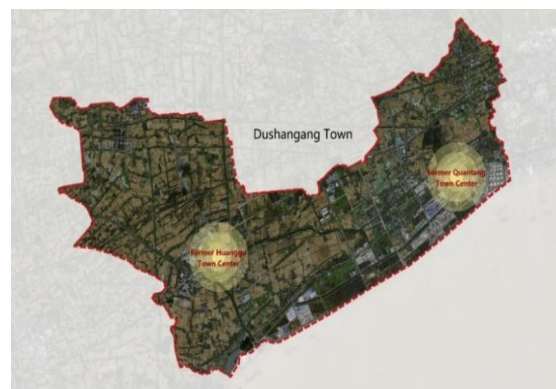


Figure 8. Dual-Core Development of Dushan Port Town

According to statistics, in 2015, the average built-up area of each administrative town in the entire province was 5.3 km², which represented a 76% increase compared to the year 2000 (3.0 km²). Approximately one-third of the central towns had already achieved the size of small cities [7]. For instance, Xincang Town in Jiaxing City was included in the list of Authority Enlargements at the Township Level Campaign in 2007. By 2014, the town's constructed area had expanded to approximately 6.05 km², which was about 1.8 times larger than its 2006 size of 3.37 km² (Figure 10). Concurrently, during this phase, the growth rate of the population in towns in Hangjiahu was much lower than the expansion rate of township areas. The average population in each administrative town was 11,659, representing a mere 23.5% increase compared to 2000 when it stood at 9,493 people. This indicates that land utilization during this period was relatively extensive, and the expansion of land did not yield corresponding population benefits.

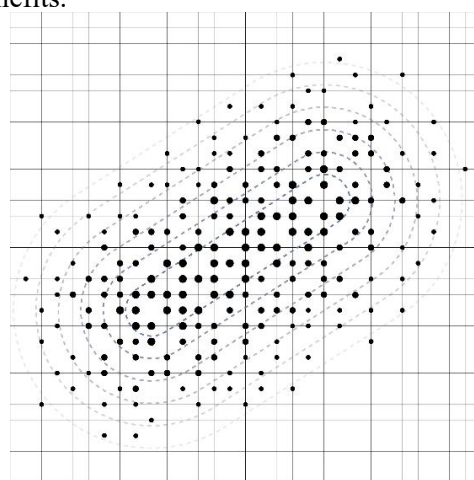


Figure 9. Structure of Circular Radiation Expansion



Figure 10. Comparison of Xin Cang Town's Township Area in 2006 (Left) and 2014 (Right)

4.3 Inward Fragmented Infilling: Deceleration and Quality Enhancement Phase (2015-present)

Against the backdrop of the province's transition from rapid urbanization to a "slower-paced, higher-quality " path, the land utilization in Hangjiahu's towns gradually shifted from outward expansion to an inward fill-in development trajectory (Figure 11). Spatial development during this phase can be broadly categorized into two components: first, the area-specific enhancement driven by the Characteristic Town action, and second, the overall spatial quality improvement led by the Beautiful Town action.

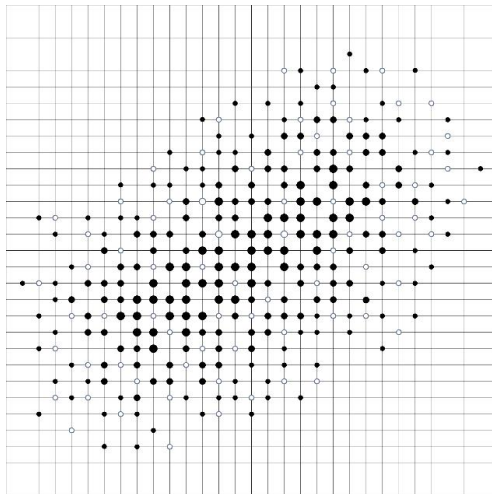


Figure 11. Structure of Inward Fragmented Infilling

The objective of the Characteristic Town initiative is to create spatial communities around distinctive industries that encompass a comprehensive range of functions and are suitable for living, working, and leisure activities. The planning area and construction area for "Characteristic Town" are limited to 3 km² and 1 km², respectively [8]. The initiative is focused on relatively independent

development zones in terms of spatial organization, often located near existing industrial parks (Figure 12). Under the influence of the Characteristic Town initiative, there has been a significant enhancement in the spatial quality of industrial areas in Hangjiahu's towns, reflecting the transformation characterized by area-specific improvements.

The spatial improvement at the area-specific level has brought about issues of internal construction differentiation within the towns. Subsequent efforts in Comprehensive Environmental Remediation and the Beautiful Town initiative have addressed the organization and transformation of internal spaces throughout the entire townscape, to some extent alleviating the problem of unequal construction quality. Specific measures include the gradual reduction of transiting roads that divide town spaces, the development of Transit-Oriented Development (TOD) models that integrate public transportation with town functions, the enhancement of 15-minute community living circles to supplement town functions, and the micro-renovation and revitalization of certain historical buildings to restore spatial textures and dredge riverbeds and ponds to establish natural corridors [10].

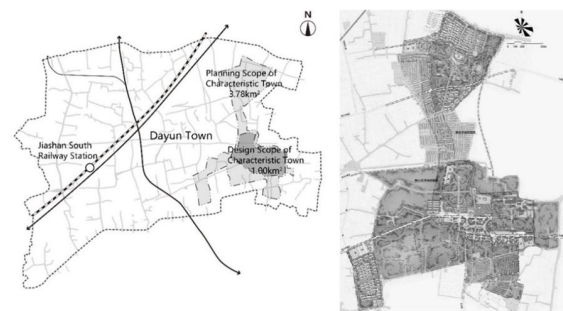


Figure 12. Location Map (Left) and Area Planning Map (Right) of Dayun Characteristic Town [9]

5. Conclusion

5.1 Summary: Leapfrogging Spatial Evolution under Phased Policy Guidance

Over the past three decades, under the policy guidance for town planning in Zhejiang Province, the construction and development of Hangjiahu's towns have progressed rapidly, with distinct trends during different periods, directly impacting the evolution of their spatial forms (Figure 13).

To curb the disorderly growth resulting from the self-organization of towns, Zhejiang Province redefined administrative boundaries and restructured the town layout, causing abrupt changes in the spatial forms of Hangjiahu's towns.

Following the merging of towns, the responsibilities of town management expanded while their powers remained unchanged, leading to a sluggish development of towns. To address this, authority and personnel management were devolved into central towns, promoting their autonomous development and causing a rapid expansion of the town's land area in a concentric and radiating manner.

To tackle the issues of the weakened influence of weak towns and the dual-level development

differentiation resulting from the empowerment of central towns, Zhejiang Province implemented a series of spatial improvement actions. These actions shifted the focus inward instead of outward expansion, alleviating the phenomenon of extensive land use and enhancing the overall spatial environmental quality. This provided opportunities for personalized development for weak towns.

In summary, the construction policies for Hangjiahu's towns have been gradually evolving, aiming to address and improve the issues and contradictions that arose in the previous stages. The transformation process has exhibited a leapfrogging pattern in the evolution of spatial forms.

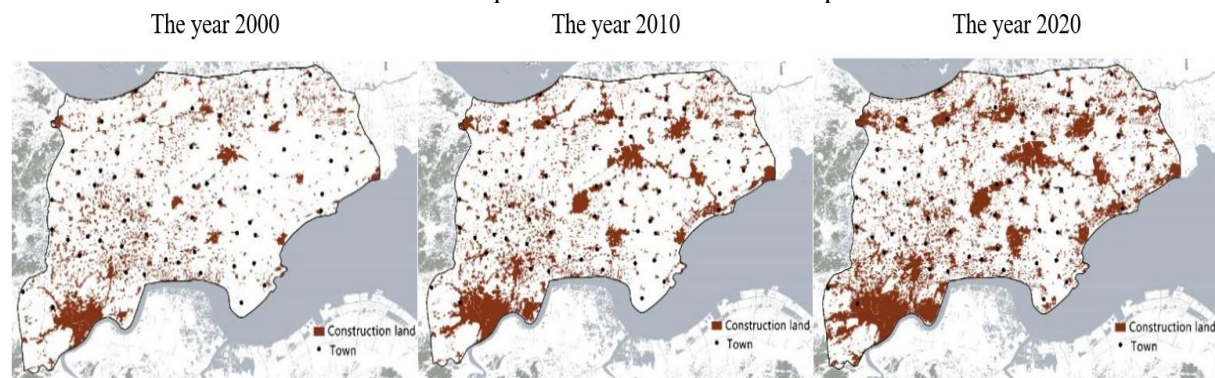


Figure 13. Land Use Map for Town Development in the Hangjiahu Region over the Past 30 Years

5.2 Outlook: Trends in Small-Scale Spatial Organization with Mixed Functions

After nearly 30 years of cultivation, the overall development of Hangjiahu's towns has seen significant improvement, culminating in a well-established industrial system and enhanced town competitiveness. With Zhejiang Province proposing the comprehensive development of "beautiful town clusters" in 2022, the future direction of Hangjiahu's towns is relatively clear. It involves industrialization driving urbanization, urbanization elevating industrialization, and gradually integrating into the development of urban-rural areas and regions.

In terms of township spatial organization, Hangjiahu's towns should adapt to the high-quality transformation of people's production and lifestyle. This transformation entails a shift away from the previous paradigm centered around "large-scale production" in human activity space organization. Urban planning ideologies and methodologies should pivot

from an overemphasis on "functional zoning" rationalism toward a more humanistic approach that focuses on "functional mixing" and highlights the characteristics of "small-scale, mixed-use, and public domain dominance" in spatial organization. These principles align with the recent emphasis on requirements for Zhejiang's town construction.

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