China’s Jiangnan region has been home to distinctive watertowns for centuries, and elements of this urban culture are still present despite industrial and commercial development over the past century. These remaining elements give the region an identity that is currently threatened by new forms of urbanization and uniform development which overlook local culture and import overseas concepts with little historical relevance. This report argues that an analysis of urban morphology and spatial typology using the Conzenian method may provide a valid alternative by which to understand the urban culture of Jiangnan’s heritage watertowns, and provide a valuable resource for the design of new development in this unique region of China and beyond.

China’s urban history spans several thousand years, yet today’s rapid urbanization is posing great challenges to designers and decision-makers who wish to retain elements of this rich urban heritage. The problem is especially acute within historical regions. Here, the fast pace of contemporary growth has frequently resulted in new development that takes little account of local urban culture, and instead seeks to imitate overseas models with little relevance to Chinese urban tradition.

The Jiangnan region in the Yangtze River Delta is home to an enduring culture of watertowns. The whole region contains elements of this urban heritage, including the significant cities of Suzhou, Songjiang and Shanghai, but it remains fully intact only in smaller towns of lesser political and strategic importance. Among these are Zhouzhuang and Wuzhen, which provide the basis for the research documented here. The report argues that the value of these heritage watertowns lies in the interaction between their urban form and the daily lives of townspeople. Residents of the towns have long used their public spaces for a variety of personal, family and communal functions that allow them to
remain in intimate contact with surrounding waterways. It is precisely this connection that is being lost in contemporary development in the larger urban areas of the region.

Urban morphology, based on the British Conzenian School and the typological theory of the Italian School, offers a potential solution to this problem by employing an integrated framework to understand urban structure and its formative processes. It may thus provide a valuable tool for maintaining cultural identity. Although further research is needed, this report seeks to provide information useful to the design of more suitable forms of development for the Jiangnan region and beyond.

CHALLENGES POSED BY CHINA’S URBANIZATION

China is urbanizing at an unprecedented pace, with an increase in urban population of approximately 200 million over the past decade. Undoubtedly, this has improved the lives of hundreds of millions of people. But the new urban development has been largely generic, with little consideration given to local cultures. Indeed, according to Charlie Xue, recent urban development has failed to create “any strong or unique sense of identity.”

Jianfa Shen has discussed four general challenges that have surfaced as a result of China’s recent economic transformation: food production, employment, urbanization, and an aging population. The absorption of large tracts of arable land into new urban areas is certainly an important aspect of these concerns. But this report will focus on another problem related to China’s new urban culture. Fei Chen has described this as a “crisis” of “placelessness” within China’s cities. Speaking to similar concerns, the Shanghai architects Lyndon Neri and Rosanna Hu have strongly criticized the lack of a “modern Chinese architecture and design language.”

The Jiangnan region is located at the mouth of the Yangtze River. It includes the greater Shanghai area and spans the border of Zhejiang and Jiangsu provinces. This region developed a distinctive urban culture over many centuries based on an integrated network of waterways, but this culture is now at risk of being restricted to a handful of small heritage watertowns. One reason is the “One City and Nine Towns” urbanization plan for Shanghai, which is intended to accommodate the rapid growth of Shanghai by developing the surrounding towns into one much larger city. The plan also proposes reintroducing Western design themes as a way to reflect Shanghai’s history of foreign concessions, although these are imagined as extending far beyond their historical boundaries and preserved architectural presence in the city center.

Songjiang, a city with more than two thousand years of history, provides a good example of the problems posed by this policy. Despite industrialization during the middle of the twentieth century, Songjiang still contains many valuable watertown features. Yet the “One City and Nine Towns” plan largely ignores these. It also reverses the city’s traditional relationship to Shanghai. Historically, Songjiang was the major urban center in the eastern Jiangnan region, and Shanghai was a subordinate city — a condition clearly shown as early as

![Figure 1](https://example.com/fig1.png)
1656–1661 in a manuscript map of the Songjiang Prefecture (part of the Löwendahl collection). The new plan envisions Songjiang New City as a medium-sized suburb.

A theme of English architecture has also been chosen for the development of key parts of Songjiang. This includes “Thames Town,” a commercial and residential district designed by the British firm Atkins. Although it won a 2001 international competition, Thames Town expresses little of the relationship between public spaces and waterways that was a dominant feature of the area’s historic towns. And although its main square features a “church” (used extensively as a backdrop for wedding photographs), the space seems to play a lesser role in local urban life than did traditional watertown spaces (fig. 2a). Meanwhile, several other large new public spaces are located nearby, including People’s Square and a green-belt park, and they too are used sparingly, raising issues of public safety after dark (fig. 2b).

Although they are just starting to be applied to design, studies of urban morphology may offer a valuable tool for maintaining urban culture in historic regions such as Jiangnan. Chen has listed three benefits of adopting a morphological approach: cultural representation and symbolism, morphological references or design language, and effective communication. In other words, it provides a way for the contemporary designer to engage with local culture and symbolism, reinterpret the local design language, and present a design that can be understood and appreciated by the local community.

In Songjiang, the value of local traditions was previously demonstrated in Feng Jizhong’s design for Fangta Park, developed from 1978 to 1982. Prof. Feng was famous as the founder of contemporary Chinese urban planning, and although his project predated the introduction of urban morphology to China, it similarly interpreted traditional concepts using a modern sensitivity. The park houses several historic elements: the square Buddhist pagoda that gives it its name and a nearby stone bridge, both from the Song dynasty (960–1279 AD), and a carved screen wall from the Ming dynasty (1368–1644 AD). But instead of imposing a traditional symmetrical and axial layout, Feng’s design maintained the asymmetrical alignment of the historic elements in their original locations, and linked them using a network of small spaces incorporating traditional stone paving patterns.

The paved space around the Fangta Pagoda was further carefully designed according to Feng’s research into the proportions of traditional pagoda spaces. Thus, its dimensions were based on an angle of sixty degrees from the top of the pagoda to the edge of the space. This allows the pagoda to be viewed comfortably in its entirety (i.e., a taller pagoda would have required a larger space). In addition, the paved space is screened from the rest of the park by a 3.4-meter-high wall and a raised landscaped mound, which focus attention toward the pagoda (fig. 3). Of course, Feng’s design famously incorporated contemporary ideas from overseas, such as areas of grass, that were not part of traditional Chinese garden design; he even selected exotic planting. But his design respectfully recognized and responded to local urban design values and practices.

Feng’s design for Fangta Park was widely debated at the time it was completed, and it has recently again become a topic of discussion. Domestic scholars generally agree it is a significant work, one that captures the essence of Chinese landscape design but adapts it for modern society. The new development in Songjiang, by contrast, risks losing the watertown’s identity — its unique urban culture — by importing
clusters of eccentric buildings from overseas and creating oversized urban spaces which are neither understood nor embraced by the community. Feng’s more considered approach applied an understanding of traditional concepts, combined with contemporary ideas, to produce a design appropriate to the local context.

The above assessment of Fangta Park as a precedent is not intended to promote strict historicism or conservative, traditional continuity as a design approach. Instead, it is meant to show the value of understanding local urban patterns during the design process.

**URBAN MORPHOLOGY OF ZHOUZHUANG AND WUZHEN**

The Jiangnan watertowns have received significant attention over the past three decades. This is particularly true for the six notable towns of Nanxun, Luzhi, Xitang, Wuzhen, Tongli and Zhouzhuang, which have been restored for an expanding cultural tourist market (Fig. 4). Indeed, the restoration of these towns earned Ruan Yisan, a prominent academic figure, an Award of Distinction for Cultural Heritage Conservation from UNESCO in 2003.¹⁵

Zhouzhuang and Wuzhen have been officially protected heritage towns since the mid-1980s.¹⁶ Ruan’s research there, however, focused largely on their conservation and restoration as tourist sites. Another prominent academic, Yong Zhenhua, has also studied these watertowns, but with more emphasis on their traditional architecture. This included involvement in the restoration of the Shen and Zhang mansions in Zhouzhuang.¹⁷ Meanwhile, although urban morphology studies have been prepared for the historic district of Pingjiang in Suzhou, no one has yet prepared such studies for the watertowns considered in this report. This is especially true with regard to the Chinese li (里), concern for which provides an underlying basis of the work here.

Urban morphology is the study of settlement form, and has its origins in the work of M.R.G. Conzen in Britain and in the typological theory of the Italian School during the 1950s. In order to understand a settlement’s morphological development, Conzen identified three fundamental subjects of plan analysis: the street system, plots (aggregated into street blocks), and land and building utilization.¹⁸ Although his method has been applied internationally over the past two decades, it is only just beginning to be used in China. In China, its development has been hindered by the nature of historical records and plans, which are generally pictorial and show little planimetric information. Another problem is the loss of many documents during the Cultural Revolution of 1966–76. Together, this lack of historic documentation makes plan analysis challenging, and in many cases, urban morphology must be largely hypothesized using current plans.

Studies in China using a hypothetical approach have nevertheless begun to yield valuable findings. Among these is an analysis of the historic city of Pingyao carried out by J.W.R. Whitehand and Kai Gu.¹⁹ But these studies have yet to have much impact on contemporary design. At the same
An overview of the six notable heritage watertowns of Nanxun, Luzhi, Xitang, Wuzhen, Tongli and Zhouzhuang, showing their historic and current urban areas.

Key:
- Waterways
- Historic Urban Areas
- Current Urban Areas
- Current Rural Areas
time there is a strong feeling of regret that so many historic areas have been replaced in the present drive toward modernization, especially in light of the potential economic benefit of cultural tourism.

The present report employed a methodology similar to that used by Whitehand and Gu. This involved field studies of Zhouzhuang and Wuzhen followed by plan analysis of current form to better understand their distinctive urban culture. It could be argued that changes to these towns over the past two decades have primarily been aimed at creating a more appealing tourist environment. But the traditional built fabric of both towns is largely intact, and it was this that formed a basis for this report.

Analysis of Zhouzhuang. In Conzenian terms, the current town plan of Zhouzhuang embodies a rich variety of “morphological periods” within a relatively small area (Fig. 5). The town “kernel,” appears to have been laid out using a half-configuration within a trapezium that follows the

**Figure 5.** Preliminary plan analysis of Zhouzhuang, indicating the authors’ hypothesis of the urban morphology of the development of the watertown (A, B, C show locations for Figure 10).
The li (里) is a traditional unit of distance, measuring approximately 416 meters, which was used from the time of the Eastern Zhou dynasty (770–256 BC) to that of the Sui (581–618 AD). The term also has a general association with human settlement; in this sense it could mean a small village, hometown, neighborhood dwelling, or basic unit of local governance (whose size ranged from 25 to 110 households during different periods of history). But the use of regular dimensions based on a 416-meter li suggests that Zhouzhuang was initially planned and laid out before the Tang dynasty (618–907 AD). Indeed, the town may have existed even earlier, as evidenced by the fact that the noted scholar and calligrapher Zhang Han turned down a prestigious government post to live in a settlement in the Zhouzhuang area during the fourth century AD.

Further evidence of Zhouzhuang’s age is provided by its layout. Remnants of regular eighth-li (approximately 50-meter) divisions are still visible in its current form, and an irregularity in its plan of one-tenth li (approximately 20 meters) near Zhenfeng Lane hints at an earlier settlement predating the initial town plan. Zhenfeng Lane also shows signs of early “market colonization,” in Conzenian terminology, because it is built up with retail shops along both sides, with relatively few openings to the waterway compared to other waterfront lanes.

**Figure 6.** Preliminary street network analysis of Zhouzhuang, showing the town layout relating to the li (里), a traditional Chinese unit (approximately 416 meters).
Two temples were founded on the periphery of the town in 1086 AD.\textsuperscript{44} They can be defined as embodying a Conzenian “urban fringe belt.” Although they were subsequently enveloped, their position suggests the extent of the town at that time. The urban landscape in the earliest portions of the town — a combination of the initial “kernel” (pre-618 AD) and subsequent development (pre-1086 AD) — shows intricate “metamorphic” patterns consistent with its age. Zhouzhuang prospered under the stability and international trade promoted by the Yuan dynasty (1271–1368 AD), and the town’s wealthy merchants subsequently built expansive courtyard mansions across the river to the east. Among these is the Zhang mansion, which covers an area of more than 1,800 square meters. Over the past thirty years the entry halls and riverside storage rooms of these mansions along Bei Shi and Nan Shi lanes have been restored and adapted into restaurants and shops for tourists.

The expansion of the town during the Yuan dynasty continued to follow the earlier half-li (approximately 200-meter) layout. But the width of some of the larger mansions exceeded the previously used eighth-li width dimension. Toward the end of this period, in 1355, the Fu’an Bridge was constructed. The twin bridges, Yong’an and Shide, were then constructed farther north in 1571, suggesting a slow development of the town in this direction.

The western portion of the town appears to have developed later, with more open planning and smaller houses than in its older sections. Among these is the Shende house, built around two courtyards in 1876. The houses of this period retain the characteristics Chunlun Zhao has described in his analysis of the origins of Shanghai’s shikumen from the 1870s to the 1910s: an overall dialectic relationship of several sets of dual-coordinators, a hierarchical order and central axis, and an emphasis on metaphoric meanings for each room rather than functional definitions.\textsuperscript{45}

This portion of the town continues to follow the half-li layout of bridges but does not follow an internal eighth-li organization. One exception, however, is the location of the Fuhong Bridge, which is three-quarters of a li (approximately 300 meters) from the Qinglong Bridge. In Conzenian terminology the area can be described as a “residential accretion” with some “hypometamorphic” development. The present authors noted the use of the small public spaces here for growing food, which may be a response to the loss of the town’s “urban/rural fringe.”\textsuperscript{46}

The most recent, southwestern, portion of the historic town is centered around the steamship quay on South Lake. This area developed as a mixture of workshops and small dwellings from the late nineteenth to the early twentieth century. At that time, China’s increasing interaction with the West had introduced new shipping technologies, which changed the nature of water transportation and also affected the urban landscape. The entire historic town also underwent significant redevelopment during the eighteenth and nineteenth centuries, which included the replacement of some buildings. But the degree to which the local style remained embedded in the culture can be seen by the level of historicism associated with the built fabric from this period, which still closely followed the inherited urban style.

**Analysis of Wuzhen.** Although maintaining similarities to the built fabric of Zhouzhuang, the western quarter of Wuzhen presents a different urban morphology. This area has undergone three recent “morphological periods,” which have included building replacement.\textsuperscript{27} These corresponded, in historical sequence, to a cycle of redevelopment during the nineteenth century, extensive repairs after World War II, and recent hotel redevelopment to provide accommodation for visitors (fig. 7). The redevelopment in the nineteenth century included the “accretion” of ironwork foundries and areas for bean-paste and silk manufacturing around the periphery of the town — as well as “infill” and “repletion” in the portion of the town north of the Xisha River. Along Xizha Dajie Lane most of the structures feature both businesses opening onto the street and residences at the upper levels, some of which have been converted to guest rooms (fig. 8).

Much of the older section of Wuzhen was developed in a linear manner along the Xishi River, with a consistent width of a half-li to each side over a distance of approximately 1.8 kilometers. This again suggests an area laid out before the beginning of the Tang dynasty (618–907 AD) (fig. 9). The houses along the waterfront here overhang the river in a manner unique to Wuzhen, with openings that allowed occupants to buy goods directly from trading boats below and keep live fish in nets hanging in the river.\textsuperscript{48}

The Zhao Academy to the east and the Water Stage to the west, both from the Tang dynasty, may indicate the extent of the town at that time. However, further research and analysis is needed to identify additional patterns in the town’s layout and gain a more complete understanding of its morphological development.

**Spatial Typologies in Zhouzhuang and Wuzhen**

The Jiangnan watertowns developed a unique spatial network that reflected the lives of townsfolk. Their design was also strongly rooted in local cultural and spiritual practices. Kai Gu (who introduced the benefits of “morphological analysis” to studies of spatial typology in China\textsuperscript{49}) has, for example, pointed out how maps of the Jiangnan region from the early nineteenth century show almost no significant roads.\textsuperscript{50} Rather, waterways dominated the region’s transportation system, and their positioning was deeply influenced by principles of fengshui — in which water provided a powerful element.\textsuperscript{51}

Fengshui (geomancy) has been a significant part of Chinese culture since the Bronze Age (c. 1700–221 BC). Among the purposes to which its principles have been applied is the siting and layout of towns to respond to qi (cosmic breath).
Proper siting of a town was believed to bring good fortune and wealth to everyone living there. Any change to an existing layout might harm its future prosperity, and therefore needed to be carefully considered.\textsuperscript{31} Taoism, Buddhism and Confucianism also influenced spatial culture in the watertowns. The courtyards and gardens of Taoist and Buddhist temples provided valuable public spaces, while Confucian codes maintained harmony in social relationships and created a clear definition between private walled residences, with few openings, and the public street network.\textsuperscript{32} Changes in government and culture under different dynasties also played a role in shaping the towns. For example, during the Song dynasty (960–1279 AD) a previous, rigid ward system was replaced to encourage commerce. One result was the emergence of bustling night markets and a greater flexibility in the use of public space.\textsuperscript{33}

\textbf{FIGURE 7.} The western portion of the historic town of Wuzhen shows linear development along the Xishi River.

\textbf{FIGURE 8.} The Xizha Dajie Lane in Wuzhen (approximately three to five meters wide) lined with double-story dwellings with businesses opening onto the street and with residences on the upper stories.
In general, public spaces in Jiangnan watertowns were small and closely related to the waterways. Situated at regular intervals within a network of narrow lanes and alleys, such “pocket spaces” served a variety of communal functions. According to Yong Zhenhua’s study of the traditional spatial language of Zhouzhuang, the town’s commercial heart was defined by links between its canals, piers and bridges. But within this system, small-scale open areas served as social spaces in which to meet friends and family. Often located within parcels owned by extended family clans, they might also accommodate small stalls selling food or other goods. Despite their relatively small size, pocket spaces are a fundamental part of the daily life within the watertowns, and are well maintained by the community.

In Conzenian terminology, in a town like Zhouzhuang, waterways provided the primary “plan element” and “fixation lines.” Zhouzhuang’s urban landscape comprises both a network of narrow rivers and canals (from ten to twenty meters wide) and a network pedestrian lanes (three to four meters wide). But because the trafficking of goods traditionally took place by boat, the Conzenian “street network” was used almost exclusively by pedestrians. These lanes generally paralleled the waterfront, although they also provided links through the town, with bridges sited at significant locations.

At the periphery of the historic town the lanes along the waterfront became wider (approximately ten to fifteen meters), and more open — especially around the Twin Bridges on Bei Shi Lane (“A” in Figure 10). Pocket spaces could also be located at important crossroads such as the intersection between Cheng Huang Li and Zhenfeng Lane (“B” in Figure 10). This space also linked two important bridges, Fu’an and Tiyun. Such elegant stone structures, open and overlooking the waterways, presented a dramatic contrast to the narrow and enclosed lanes, and were valuable public spaces for social and business interaction. Meanwhile, in predominantly residential parts of the historic town, such as along Nan Hu Lane and Nan Shi Lane near the Longxing Bridge (“C” in Figure 10), there are pocket spaces with tables and chairs for community use, as well as public landings for boats to unload passengers or goods.

The pocket spaces in Wuzhen were located at regular intervals along Xizha Dajie Lane, and opened onto the Xishi River. These spaces developed at important bridge connections, such as at Fangzheng Bridge (number “1” in Figure 11); around public wells such as the one near Dongyouche Long Alley (number “2”); at convenient landings for riverboats with pleasant garden surrounds (number “3”); or around significant buildings such as the town Post Office (number “4”).

The use of these public spaces also illustrates the authors’ concept of “conversion.” The term refers to the alteration of a space, or the relationships between spaces, during the course of a day to accommodate different activities. A large additional rural population flowed in and out of the Jiangnan urban centers around regular popular events such as
as monthly markets and temple fairs. These regular population changes, together with the dense building fabric, added value to carefully considered spatial arrangements that could be adapted to a variety of functions.

This flexible approach to public spaces also accommodated daily changes such as adapting streets of retail shops in the daytime to restaurants and food stalls in the evening. It also enabled the accommodation of special local events such as wedding celebrations or funerals, public opera performances, and religious and traditional festivals. These events brought the watertown community together and led to a degree of spontaneity and diversity in the use of public spaces which enriched the lives of the townspeople.

As China faces the challenge of rapid urbanization, much recent development, such as in Songjiang, has unfortunately failed to respond to local urban culture. It thus seems out of place when compared to such carefully crafted designs as that by Feng Jizhong for Fangta Park. The analyses of Zhouzhuang and Wuzhen presented here show the potential benefit of in-depth studies of urban morphology in terms of contemporary urban design. Each town displays a rich layering of morphological periods, each represented by slightly differing characteristics, which are all worthy of further investigation.
Understanding the role of the li and how it was applied during early town planning and governance may be particularly important in this regard. It may suggest an appropriate dimensional tool for the layout of future communities in the region. Beyond this, spatial-typology studies of the region’s watertowns show the importance of small-scale pocket spaces located alongside waterways at regular intervals. This characteristic of local urban culture indicates that locating a number of smaller public spaces throughout a contemporary development may be more appropriate than providing only large, centralized spaces. The concept of “conversion” also suggests the value of flexibility in the use of public spaces, which could be applied to contemporary design.

Research into the Jiangnan watertowns is just beginning, and further analysis is clearly necessary. But this report presents valuable findings that may be of use to decision-makers currently shaping the region. Urban-morphology and spatial-typology studies may help generate a new direction for contemporary development in the Jiangnan region and beyond based on respect for existing urban culture. The goal of such an approach is not merely to promote historicist values. Rather, it is to create a meaningful dialogue between the past and present to strengthen a sense of place and identity and reinforce the unique character of the region by understanding its origins.
REFERENCE NOTES

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24. Ibid., p.25.


27. Ibid., p.127.

28. Ruan, Watertowns of the Yangtze River, p.53.


33. Ibid., p.328.


All drawings and photos are by the authors.